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ABSTRACT

Interviews were conducted with employers and military personnel to obtain information regarding basic skills needed in entry-level jobs available to young people with a high school education. Information was also obtained from young entry-level employees and military recruits on the quality of their high school preparation in basic employment skills and the types of activities that helped them in the school-to-work transition. In-depth interviews were conducted with 135 managers, owners, and supervisors and 130 entry-level employees. Employers ranked 80 tasks in reading, mathematics, computers, writing, communications, interpersonal, manual/perceptual, problem solving/reasoning, and job retention/career development in order of importance. Employees indicated the importance of various tasks in their present positions and rated their preparation in high school for the same tasks. Open-ended questions were asked about types of courses, extracurricular activities, and out-of-school experiences that helped them succeed in their present positions. Interviews were also conducted with 45 military and 8 civilian instructors and 57 young recruits. Following two sections presenting results of the survey is a third section that provides examples of some existing programs in Colorado designed to improve the career knowledge and employability skills of young people. (YLB)

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Report of Results Colorado Employability Skills Survey

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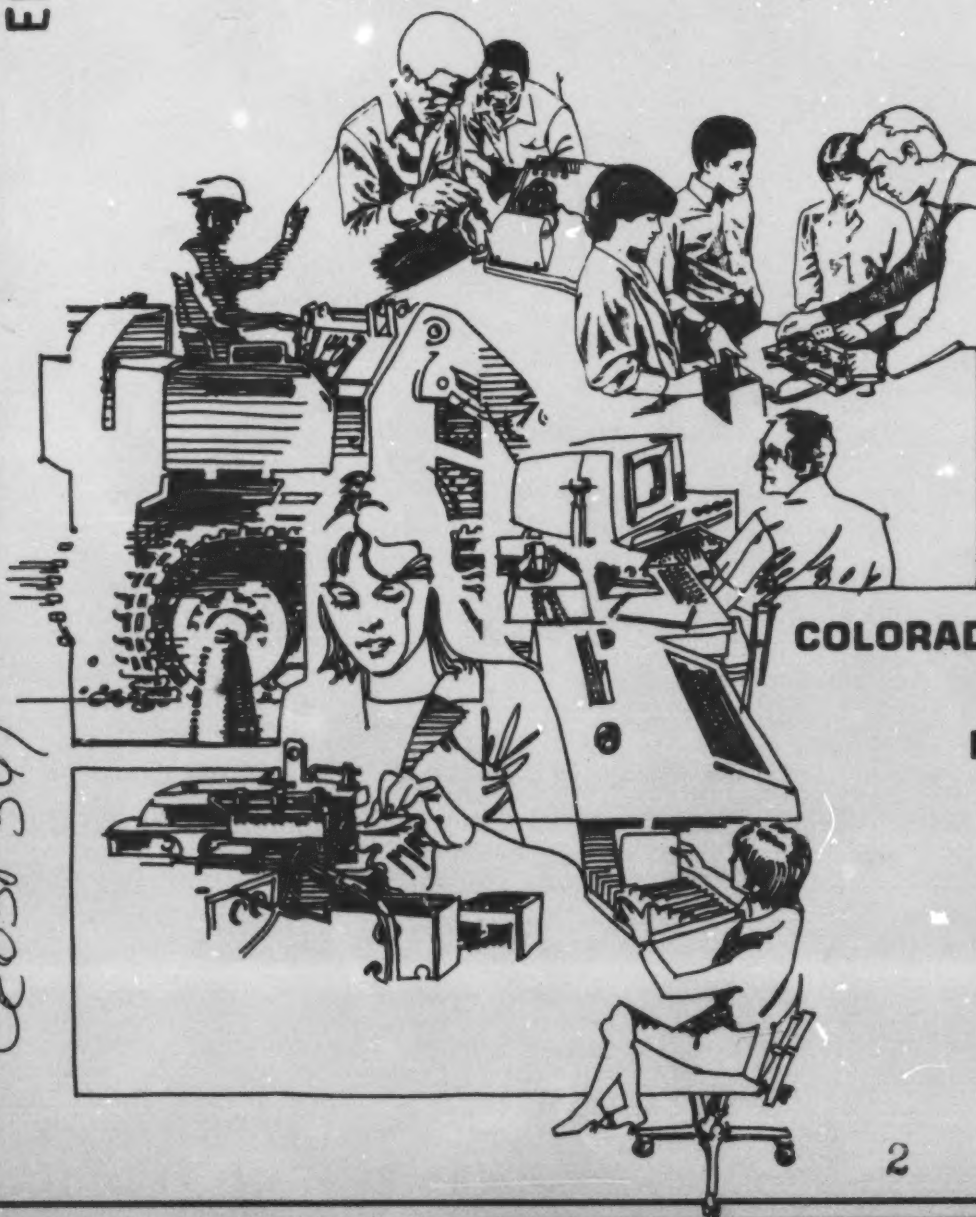
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CALVIN M. FRAZIER, COMMISSIONER

November, 1983



CE038 341

REPORT OF RESULTS
COLORADO EMPLOYABILITY SKILLS SURVEY

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COLORADO DEPARTMENT OF EDUCATION
Denver, Colorado 80203
November, 1983

This report outlines the results of a statewide survey of employers and entry level employees in Colorado to obtain specific information about the importance of various tasks in entry level jobs, the effectiveness of young people in handling entry level tasks, and the preparation of young entry level employees.

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The State Department of Education appreciates the cooperation of the following people in the conduct of the Colorado Employability Skills Survey:

- The employers (owners, managers, supervisors), employees and military personnel who participated in the interviews.
- Members of the Employability Skills Project Advisory Committee and Educators Panel who reviewed the survey instruments.
- Community and educational resource people who assisted in various phases of the survey.

The Department also appreciates the assistance of the following individuals in completion of the Report of Results:

- Anna Likens for her word processing work (typing of the original draft and numerous revisions).
- Maxine Brandenburg, Alan Huth, Gene Kane, and Jerry Terrill for their review of the original draft of the report.
- Judy Gilbert, Mary Noak, and Doris Ross for their proofreading and editing of the report.
- J. J. Jackson and his staff for their design and graphics work.

Need for the Survey

Action for Excellence, a report of the Task Force on Education for Economic Growth, outlines a comprehensive plan for improving the nation's schools. Among the recommendations of this Task Force is a call to broaden the partnership between members of the business community and educators in order to more effectively identify the specific skills which constitute adequate educational preparation for employment and implement strategies and methods to assist young people in making the transition from high school to post-secondary pursuits.

A Nation at Risk, a report of the National Commission on Excellence in Education, describes the risk our nation is facing by falling behind other countries in preparing competent, flexible young people with the abilities to meet changing workplace requirements. The report points out that this issue goes well beyond workplace concerns to the very fabric of our nation for individuals who do not possess the level of skills and training essential to a new era will be denied not only the material rewards that accompany competent performance, but also the chance to participate fully in society.

In Colorado, educators and employers are concerned that young people develop as part of their high school education, the necessary skills which will enable them to achieve success in employment. The Colorado Employability Skills Survey is one of a number of efforts by the Colorado Department of Education to identify the current skill needs of young people and develop measures that will provide them with the skills needed to meet the workplace requirements of a rapidly changing society.

Objectives Of The Survey

The Employment Skills Survey was conducted by the Colorado Department of Education during the spring and summer of 1983 in order to meet the following objectives:

- To obtain specific information from both employers and military personnel regarding the basic skills needed in entry level jobs available to young people with high school educations and to determine the effectiveness of young people in handling these skills.
- To obtain information from young entry level employees and military recruits on the quality of their high school preparation in basic employment skills and the types of activities that helped them in the transition from high school to the workplace.

Development of Employability Skills Programs

As indicated in the section on objectives, the major purpose of this survey was to provide information that can be used in planning activities and programs to assist young people in developing employability skills. The Colorado Department of Education is already in the process of helping communities form partnerships of educators, employers and parents to look at the issues of employability skills development.

This statewide survey will serve as the basis for community discussions about the employability skill needs of young people. However, the identification of specific activities and programs to assist young people in the acquisition of these skills will be generated at the local community level through the partnership process.

Structure of The Report of Results

This report is divided into three major sections. The first section discusses the results of interviews with employers and employees from business and industry. The second section discusses the outcomes of interviews with military personnel, primarily instructors and trainees in entry level training programs. The third section provides examples of some of the existing programs in Colorado designed to improve the career knowledge and employability skills of young people.

The decision to summarize the data from employers separately from the military was based on the following differences in the samples:

- Interviews with employers and employees covered a wide range of businesses and industries in Colorado, while interviews with the military focused on a small selection of entry level training programs.
- Entry level employees interviewed at employer locations were primarily from Colorado high schools. Recruits stationed at military bases came from every area of the country and military personnel could not confine their observations to recruits from Colorado high schools. In addition, only 50% of the recruits interviewed were from Colorado.

The question may be raised as to why the military was included as part of the survey, considering the limited nature of the sample and the difficulty in focusing on recruits from Colorado schools. The military is a major employer of young people in Colorado. According to the Military Enlistment Processing Station in Denver, approximately 5,000 young Coloradans enlisted in the military service during the past year. Therefore, the Department of Education felt that it was extremely important to obtain information from military personnel regarding the skills of young recruits.

Availability of Summary, Result and Technical Reports

In addition to the full report of the results, there is a brief six page report which summarizes these results and a technical report which contains a description of the process used in developing the survey instruments, copies of the instruments, and tables displaying the data collected during the Survey. These reports can be obtained from:

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<u>Report Title</u>	<u>Cost</u>
Summary of Results-Colorado Employability Skills Survey	Free
Report of Results-Colorado Employability Skills Survey	\$3.50
Technical Report-Colorado Employability Skills Survey	\$2.00

SECTION I. SURVEY OF EMPLOYERS AND EMPLOYEES

Conduct of the Survey

Selection of the Sample

In-depth interviews were conducted at 114 employer locations. These employers were selected by using recommendations from business, community and educational organizations concerned with the job placement of young people. The employers chosen for the study were those who had a record of hiring young people and were willing to permit in-depth interviews at their places of business. An effort was made to select a range of employers from different sectors of the economy in various geographical regions in Colorado. In addition to representatives from business and industry, key people in other organizations concerned with employment preparation and placement of young people were interviewed regarding skill needs at job entry levels. (Appendix A lists the names and locations of all the businesses, companies, and other organizations involved in the study. Appendix B lists the business, community and school resource people who helped in identifying and contacting employers.)

This section of the report summarizes the data collected from interviews with 135 managers, owners and supervisors and 130 entry level employees in Colorado. While the number of people interviewed was not a statistically representative sample of businesses or entry level employees in Colorado, there were sufficient interviews to make general observations about the skill needs of employers and employees and the types of activities that helped develop these skills.

At each employer location selected for the study, an effort was made to interview the person or persons most knowledgeable about the skills of young entry level employees. Managers, owners, and supervisors were presented with a list of 80 employment tasks and asked to respond in terms of the degree of importance of each task in entry level positions and the effectiveness of young employees in accomplishing these tasks.

An effort was also made to interview at least one entry level employee at each employer location. Whenever possible, the employee interviewed met the following criteria:

- A recent Colorado high school graduate who worked for the employer for at least six months
- An employee who demonstrated success at handling entry level tasks

These young entry level employees were asked to respond to the 80 employment tasks in terms of their importance in their own entry level positions and to make observations about their high school preparation in employment skills, including activities that helped, or would have helped, them in preparing for employment.

Both the employer and employee interviews were conducted by Richard Hulsart of the Colorado Department of Education and Paul Bauman of the Education Commission of the States. Mary Noak, a health specialist, interviewed people in hospitals, health centers and nursing homes. Under the direction of Marion Shaw, vocational director with the Moffat County School District, high school personnel interviewed employers and employees in the Craig area as part of an employer-shadowing project.

Instruments Used During the Survey

During the interviews, three basic instruments were used as guides to help record and summarize the information gathered.

- **The Employer Background Form**

This form was used to collect information on the extent and nature of entry level hiring, employer impressions of the application/interview skills of young entry level applicants and the types of training and basic skill instruction provided for young employees.

- **The Employer Worksheet**

This worksheet helped interviewers elicit employer responses about the relative importance of various tasks in the entry level positions and the effectiveness of young entry level employees in completing required tasks. Each employer was asked to react to 80 specific tasks covering these major areas:

Reading	Manual/Perceptual
Mathematics	Problem Solving/
Computers	Reasoning
Writing	Job Retention/
Communication	Career
Interpersonal	Development

The task statements were derived from a number of major studies completed in the past 10 years concerning transferable employment skills (i.e., skills identified as important basic employment skills regardless of the specific nature of the job).

- **The Employee Worksheet**

This worksheet lists tasks identical to those on the employer worksheet. Employees were asked to identify tasks that were essential in their present positions and to react to all of the tasks in terms of the quality of their preparation in high school. In addition, these young employees answered a series of open-ended questions that asked about activities that helped prepare them for their entry level positions and about changes in the high school that would help young people be better prepared for employment.

The instruments developed for the survey were tried out with various business organizations and reviewed by teachers, counselors and members of the Employability Skills Project Advisory Committee. The process of development is detailed in the Employability Skills Survey Technical Report and the participants in the development are listed in Appendix B.

Dialogue With Employers and Employees

The study provided an opportunity to discuss in detail with both employers and employees the issues surrounding the development of employment skills. The employers participating in the survey were very cooperative in providing the time to interview management staff and entry level employees.

The managerial and supervisory personnel interviewed were very concerned about the skill preparation of all high school students as well as the skill development of the young people with whom they worked. A majority of the employers were interested in being involved in a partnership process with educators that would result in young people being fully prepared to meet the requirements of successful employment.

The young entry level employees interviewed not only expressed concern about their own skill preparation, but also the skill preparation of their peers. Many of the employees said they would enjoy returning to high school and talking to other students about the importance of setting career goals and taking courses that would prepare them for tasks performed in employment situations.

Background Information

Entry Level Employment

According to personnel from community agencies, school programs and private business organizations involved in helping young people find employment, young people leaving or graduating from high school usually find entry positions in businesses such as banks, department stores, food markets, hotels, hospitals, recreational programs, restaurants and fast food outlets.

Conversely, the information collected in this Survey indicated that businesses and industries such as agriculture, construction, electronics, energy, manufacturing and mining hire very few young people directly from high school. These employers cited the recent economic conditions and the availability of more experienced applicants as two of the major reasons for not hiring young people directly from high school. These employers stated that they often looked for young people with some training beyond high school or related experience in another company or the military.

Some employers noted that they preferred to hire young people on a part-time basis either in a cooperative program with the schools or as part of summer

employment. These employers often use part time employment to try out young people before spending money on employee benefits and formal training.

Hiring Requirements

Most of the employers indicated they would consider an applicant without a high school diploma and without work experience. However, due to the competition for entry level positions, the applicant would have to be outstanding during the application/interview process, clearly demonstrating that he or she had the skills to handle an entry level job. In most cases, such an applicant who was hired would eventually be required to obtain a high school diploma or GED as well as additional education and on-the-job training before advancing to a higher level.

The Application/Interview Procedure

Employers were asked to rate young applicants on performance during the application/interview process. The following were rated by employers:

<i>Application Form</i>	<i>Interview</i>
Follow Instructions	Punctuality
*Write legibly	*Attire
*Spelling	*Grooming
*English usage	Posture
*References	Confidence
School record	*English usage
Work experience	*Knowledge of position
Personal information	Interest in position
*Completeness	*Interest in company
	*Knowledge of company

Since employers hired relatively few young people directly from high school, their impressions about high school preparation were often based primarily on their experiences with young people during the application/interview process. In general, employers were very critical of the young applicants. They felt that high school graduates should be able to do a better job of handling the application/interview process, particularly in those areas marked by asterisks in the list above.

Success in the application/interview procedure was identified as being of utmost importance in obtaining a job. Employers not only judged the overall capability of young people during this process but often used the procedure as tests of specific basic skills. Failing to follow simple instructions or taking too much time on the application was often interpreted as a potential reading problem. Incorrect spelling or English usage on the application form was a sign of poor writing skills. Incoherent or inarticulate self-expression by an applicant during the interview was often viewed as a lack of communication skills.

The employers expected that an applicant should be able to do an excellent or good job of handling the application/interview process; therefore, those applicants rated as fair or poor during the interview process

would be eliminated from consideration. According to the data collected, an average of only 5% of the entry level applicants were rated as excellent in the application/interview process. Thirty-five percent were rated as good, 35% as fair and 25% were considered poor. When the data for the fair and poor ratings were combined, approximately 60% of the entry level applicants were rejected for deficiencies in the application/interview process.

All of the characteristics outlined for the application/interview process were considered important by employers. However, if a trait was identified that would be exceptionally impressive to most employers, it would be one of attitude. Providing that an applicant had demonstrated the basic academic skills, the applicant became truly competitive when he or she expressed a convincing interest in the company by being knowledgeable about the position applied for as well as what the company does. An attitude suggesting the job was just for the money usually eliminated the applicant from consideration.

Testing

Beyond the typing test required for most clerical positions, very few of the employers interviewed formally tested applicants for entry level positions. The reasons cited for not testing were the time and expense involved in testing and uncertainty about the validity of the results. When tests were used they tended to be in mathematics (basic computations plus some word problems) and in English (vocabulary, spelling, grammar, punctuation). The employment personnel interviewed who administered such tests were concerned over the poor performance of young applicants in answering very basic and simple questions.

When young people were applying for positions that might involve manual or perceptual tasks, they were sometimes required to take some type of agility or perceptual test. Those applicants for entry level positions that required the immediate use of a vocational skill such as welding, carpentry or auto mechanics were often required to demonstrate this skill before being hired.

References

Employers often checked references provided by the applicant, particularly those related to previous employment. They recommended that a young applicant be as truthful as possible about previous employment and emphasize those positions that involved taking individual initiative.

In rural areas and small communities, the employers often knew something about the person prior to their application for an entry level position. The significance of personal acquaintance is also suggested from data from entry level employees regarding sources of information about jobs. Many employees interviewed indicated they found out about job opportunities through a family member or friend who worked at the

company. While a personal contact was useful in locating and obtaining an entry level position, employers indicated that a good work and school record and an ability to handle the application/interview procedure were equally important in the hiring process.

School Records

Most employers interviewed seemed to pay minimal attention to overall grade point averages during the hiring process. However, they were often very interested in the type of courses taken and the nature of extracurricular involvements during high school. These school experiences were often discussed during the job interview. In response to questions concerning the type of school activities or courses employers considered useful on the job, employers mentioned the following activities or courses as most useful:

- Mathematics, particularly consumer or business mathematics for most entry level positions. High technology companies often require at least two years of algebra, a year of geometry and prefer that the applicant have trigonometry as well as calculus.
- English, particularly reading development, technical writing and oral communication.
- Business or distributive education programs for any clerical or office position including courses in typing, bookkeeping, office machines, office procedures and business economics.
- Vocational education courses covering skills needed on the job.
- Science courses that enhance problem solving and reasoning skills.
- Extracurricular activities such as athletics, involvement in school programs (e.g., student government, office and teacher aides, publications), and membership in various clubs and organizations (e.g., 4-H, Future Farmers of America, Future Homemakers of America, Future Business Leaders of America, and the Reserve Officer Training Corps). Employers felt that such activities teach young people important skills of organization, responsibility and working with others.

Work Experience

It was apparent that employers liked to hire applicants who had experience in a related business or industry. An applicant who had been in a cooperative education or on-the-job training program and had done a good job usually had a definite edge over other applicants. A number of employers indicated that they often asked vocational or private occupational schools to recommend applicants because of considerable success with employees hired from such programs.

Many of the employers stated that regardless of the specific nature of previous employment, they were most interested in applicants who demonstrated the following abilities:

- Accepting responsibility
- Serving a client or customer
- Working cooperatively with other employees
- Handling money
- Being dependable and punctual

In positions where applicants were required to handle physical tasks, manual dexterity and physical strength were also named as essential abilities.

Employers in both metropolitan and rural areas were often impressed with applicants who came from families with ranching or farming experience. They felt that young people from these environments usually had regular work responsibilities and had developed a strong work ethic.

Orientation and Training

A majority of the employers interviewed said that they provided entry level employees with a description of their jobs and an employee handbook that outlined company policies and employee benefits. Most employers also provided orientation on company policies and facilities. Only 50% of the employers indicated that they formally presented information on future opportunities in the company at the time of hiring.

Most of the training of entry level employees was done on the job by a supervisor. A buddy or mentor system in which the young person was placed with a more experienced employee for training was also very common. Employers usually provided some type of formal group training while the employee was in an entry level position. Programmed or computer-assisted training was only used in larger businesses.

Approximately 50% of the employers interviewed indicated that they reimbursed young entry level employees for taking educational courses outside of the job. While these employers often required that the courses be related to responsibilities on the job, they were liberal with those requirements and quite generous with their support for continuing education. Most of the companies with a system of reimbursement paid between 80-100% of the employee's expenses. Larger companies often provided educational courses at the business location.

Approximately 25% of the employers interviewed provided some type of professional counseling for personal problems. About 50% of the employers provided counseling by a supervisor or staff member trained or experienced in handling personnel and interpersonal problems.

Only 10% of the employers interviewed provided basic skill training in mathematics, reading and/or writing. Between 25-30% of the employers provided formal training in oral communications, career planning and/or interpersonal relations. Forty percent of employers offered some formal training for employees in problem solving techniques and/or time/cost management.

Almost every employer wanted their employees to know about the economic operations of their business (e.g., costs, taxes, profits). While only 25% said they already had a formal program in this area, a number of the other employers were developing such a program and felt the school systems were remiss in not teaching more business economics.

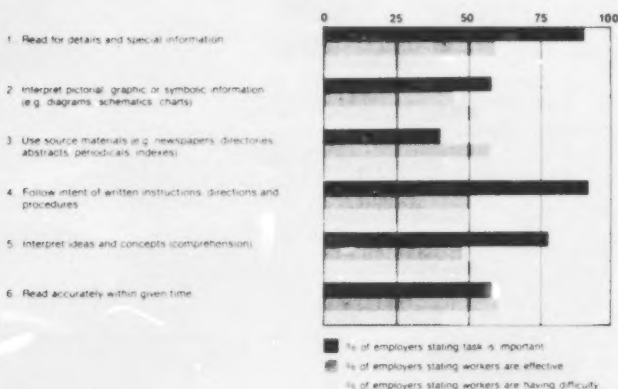
Results of Employer Interviews

Presentation of Data

This section presents data collected from Employer Worksheets on which employers rated 80 tasks on degree of importance in entry-level positions and level of effectiveness of entry level employees in handling these tasks.

A graph for each major task area illustrates the importance of the tasks in that area and the effectiveness of the entry level employees. Following each graph is a brief narrative about the results based on comments from the employers.

Reading Tasks



Reading for details, following instructions, and comprehension were considered the most important reading tasks in entry level positions.

Interpreting pictorial information, using source material, and reading accurately within a given time were considered less important. However, employers indicated that as young people advance in various positions, the requirements for obtaining information on a variety of subjects with speed and accuracy increase and these reading tasks grow in importance.

Entry level workers were most effective at reading for details and special information and had the most difficulty with interpreting pictorial information and interpreting ideas and concepts (comprehension).

The types of reading materials that entry level employees were required to read were recorded during the interviews. It appeared that the reading required on the job was considerably different from the reading required in most high school English and reading courses. Job-related reading materials were often detailed and technical. The type of reading required on the job appeared to be more closely related to the type of reading a student would find in a science textbook, shop or computer manual than in reading materials found in a language arts course.

Employers noted that young employees, often asked a fellow worker how to do a task rather than reading the instructions or directions in a manual. The employers admitted that this might be a question of attitude rather than an indication of an inability to read. Young employees stated that they felt it was easier to ask someone than to read through a series of complicated directions. The importance of motivation was supported by comments of young entry level employees who often said they felt that instructional manuals were dull and repetitive. However, employers pointed out that regardless of an employee's lack of interest in the materials, instructions must be accurately read in order to effectively accomplish work tasks. A young person cannot always depend on getting accurate information from a fellow employee.

Following is a list of the most common types of required reading materials:

Job Entry Reading Materials

Most Common

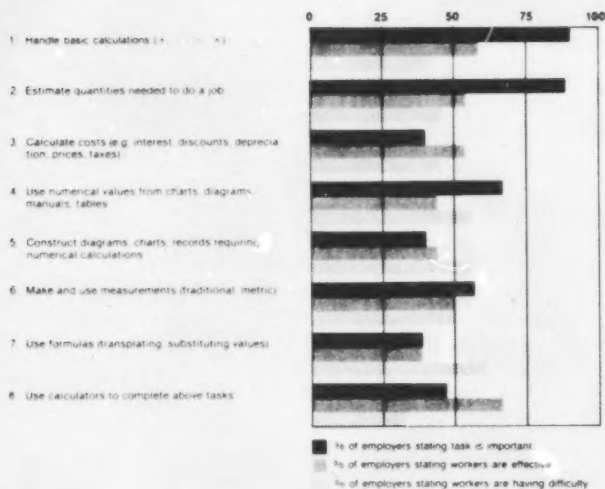
Messages
 Memos/letters
 Employee handbook
 Company/department policies and procedures
 Training Materials
 Safety rules
 Instructions (assembly, operation, maintenance/repair, processing)
 Work orders
 Purchase/supply orders
 Specification sheets
 Pricing policies
 Stock/parts listings
 Labels
 Schedules/charts
 Newspaper ads
 Applications

Frequent

Newsletters
 *Textbooks
 Blueprints
 Contracts
 Computer printouts
 Computer manuals
 Reference materials
 Menus
 Invoices
 Tests
 Industry/trade publications
 Field reports

*Required in training programs
 (not usually an employment requirement)

Mathematical Tasks



According to employers, handling basic calculations, estimating quantities and using numerical values from charts and tables were described as the most important mathematical tasks in entry level positions.

Constructing diagrams and charts, calculating costs and using measurements and formulas were considered less important in entry level positions. However, employers indicated that as an employee advances in a company, these tasks may also become very important.

All the mathematical tasks listed in the graph above were usually important in jobs requiring technical abilities. Employers in industries, such as electronics, often wanted their employees to have a good understanding of the mathematical principles covered in high school courses in algebra, geometry and trigonometry.

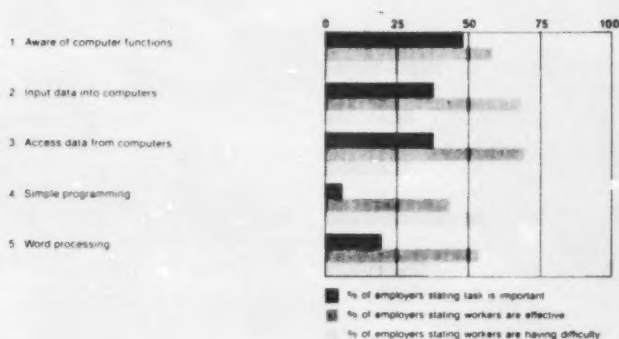
Many employers felt that the operation of the calculator was a simple keyboard skill which can be learned on the job, and that students must learn how to make calculations and to solve mathematical problems without depending on mechanical devices in school.

Employers indicated that approximately 60% of young workers were effective in handling basic calculations (+, -, ×, ÷). However, many noted that entry level employees had difficulty with calculations involving the use and conversion of decimals, fractions and percentages.

Approximately 50-60% of the employers found that entry level employees were having difficulty with using numerical values from charts, constructing records requiring numerical calculations, and using formulas.

In addition to rating various mathematical tasks, employers were asked to comment on the ability of young entry level employees to use various problem-solving skills. Employers noted that young employees had considerable difficulty in analyzing situations, following logical procedures and checking for accuracy.

Computer Tasks

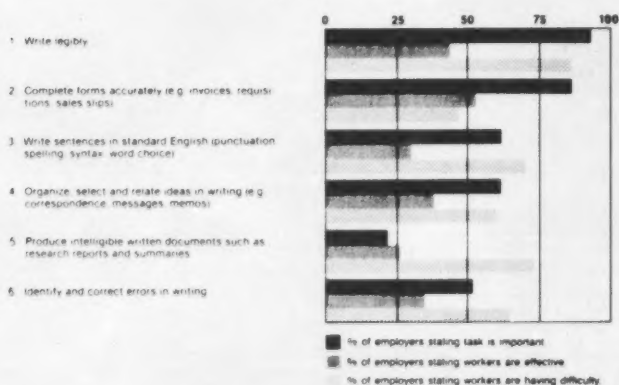


Approximately 40% of the employers indicated that awareness of computer functions and the inputting and accessing of data on the computer were important tasks in entry level positions. However, a large majority of the employers felt that these three tasks would be required for most entry level employees within the next few years. Almost all employers indicated that young people should have experience with computers before leaving high school.

Programming was seldom mentioned as a requirement in entry level positions and most employers indicated that they did not foresee programming as a major entry level skill.

Word processing was indicated as an important entry level skill by 20% of the employers. Employers felt this task would grow in importance as word processing comes into greater use in business and industry. Many employers recommended that computer usage and word processing be required in high school. They were generally pleased with the ability of young entry level employees to handle basic computer tasks. The employers indicated that they had little experience in supervising entry level employees in more complex programming or word processing skills.

Writing Tasks



Writing legibly and completing forms accurately were considered the most important entry level writing tasks. Approximately 60% of the employers interviewed also found the ability to write standard English; to organize, select and relate ideas; and to make corrections in writing (proofreading) important entry level tasks. Only 22% of the employers noted that producing intelligible written documents and reports was an important entry level task; however, employers noted that when young people reach more advanced positions, they are often required to write reports and summaries.

Between 60-70% of the employers interviewed specified that entry level employees had difficulty with most of the writing tasks discussed during the interviews.

According to employers, a major problem in writing was a lack of concern for accuracy. A single misspelled word, a grammatical error or poor word choice in a written communication can be an embarrassment to an employer, particularly when noted by a client or customer. An incorrectly filled-out form can result in loss of time or money for both the customer and the employer. An illegible or garbled written message can cause the loss of important or critical information. If production and progress reports are not well organized and well written, it is difficult for managers to make important business decisions.

Young people report that they were not exposed in high school to some of the common types of writing assignments found in entry level positions. The main emphasis in high school was usually on essay and report writing while it was obvious from the comments of employers that a majority of writing in entry level jobs involved filling out forms and work orders; taking messages given in person or over the phone; writing letters and memos; and completing brief progress reports. Following is a list of common entry level writing assignments:

Job Entry Writing Assignments

Most Common

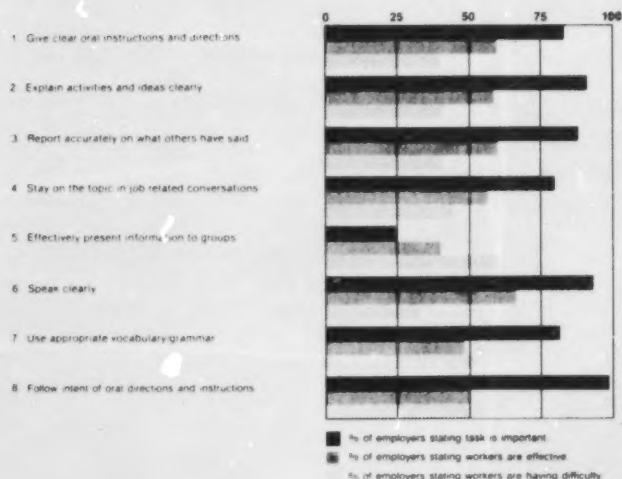
Purchase orders
Sales/tickets
Vouchers
Invoices
Inventories
Requisitions
Customer complaints
/refunds
Memos/letters
Messages/notes
Charts
Production information
Progress reports
Time cards
Repair tickets
Error/problem notices

Frequent

Log book
Ledger entries
Advertising copy
Activity plans
Account reports
*Essay tests
*Note taking
Repair tickets
Technical documentation

Of all the areas covered in this report, employers were most critical of the writing skills of young entry level employees. Employers wanted young people to come to them with the basic writing skills required to fill out forms and write messages with accuracy. They wanted young people to be able to proofread their own work as well as the work of others and be able to recognize errors in spelling, punctuation and syntax.

Communications Tasks



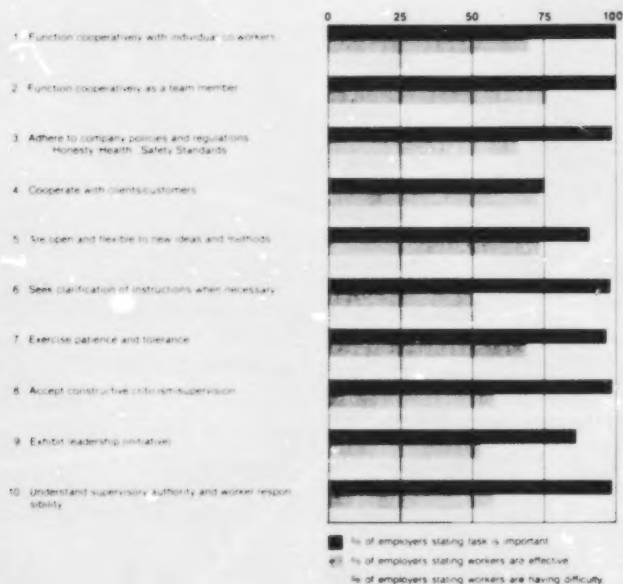
According to the employers interviewed almost all of the communication tasks listed above were very important in entry level positions with the exception of presenting information to groups.

While making formal group presentations was not considered an activity required of entry level employees, employers still considered the development of oral expression abilities and the organizational skills that result from experiences with group presentations essential for further progress in a company. Most employers felt that the school should provide more experience in making formal presentations.

Approximately 60% of the employers noted that entry level employees were usually effective in giving clear oral instructions, explaining their ideas, reporting accurately on what others have said, and speaking clearly. However, 50 to 60% of the employers found that young employees had some difficulty in presenting information to groups, following the intent of oral directions and instructions, and using appropriate vocabulary and grammar.

*Required in training programs
(not a requirement in most employment situations)

Interpersonal Tasks



Employers interviewed considered all of the interpersonal tasks listed above as very important skills for young people to have in entry level positions.

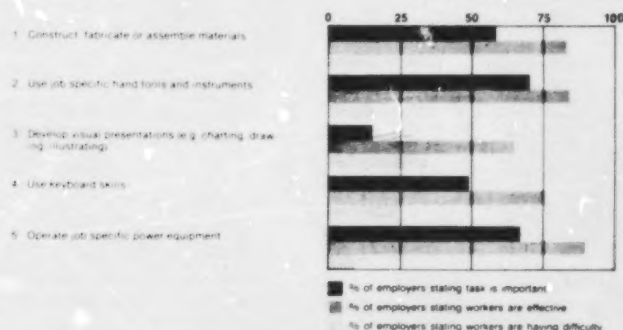
Entry level workers were generally effective in working cooperatively with clients and customers as well as fellow workers. These employees were also open and flexible to new ideas and exhibited patience and tolerance in work situations. A majority of the employers reported that young entry level employees were very effective in following company policies and regulations.

Young employees had some difficulty in seeking clarification of instructions from supervisors. Employers indicated that young employees often asked fellow employees rather than a supervisor for help or proceeded with a job without a full understanding of the instructions.

Young entry level employees also had some difficulty in accepting constructive supervision. According to employers interviewed, young people were very sensitive about supervisory authority and often took comments from a supervisor as a personal criticism rather than as a suggestion for improving skills. Employers admitted that the problems in this area sometimes stemmed from the manner in which the supervisor approached a new employee. In terms of responsibility of the schools in this area, a number of employers suggested that the school provide experiences for students in which they can develop skills in dealing with the criticism and/or supervision that might come from an employer, parent or teacher.

A number of employers also wished that young workers would demonstrate more initiative at work. There was a very delicate balance in this area, for employers wanted entry level employees to avoid responsibilities that they did not have the experience to handle well, and they also wanted young employees to recognize when it was appropriate to help another worker or take responsibility for a task that was not being adequately completed. Employers felt that young people needed experiences in high school that would help them to develop skills in dealing with authority and asserting their own ideas.

Manual/Perceptual Tasks

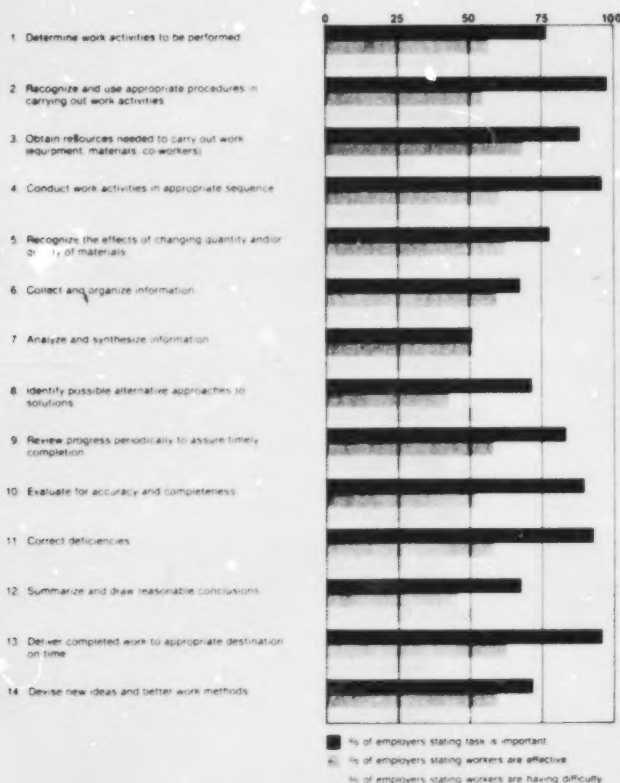


With the exception of developing visual presentations, all the manual/perceptual tasks in the survey were considered important skills in entry level positions. While it appeared that keyboard skills may be less important than some other skills, employers emphasized that they would like to see all young people have experience with using a keyboard while they are in high school. Employers foresee a time when most entry level employees will be required to use the keyboard on a calculator or computer.

According to the employers requiring manual/perceptual tasks, young entry level employees displayed considerable ability in assembling materials and operating power equipment. Following are some examples of power equipment that young people operate in entry level positions:

- Power drills and saws
- Electric typewriters
- Calculators
- Cash registers
- Computer terminals
- Forklifts
- Soldering and welding equipment
- Copy machines
- Lawn mowers
- Slicers, mixers
- Delivery vehicles

Problem Solving/Reasoning Tasks



Except for the task of analyzing and synthesizing information, employers rated the tasks listed above as very important in entry level positions.

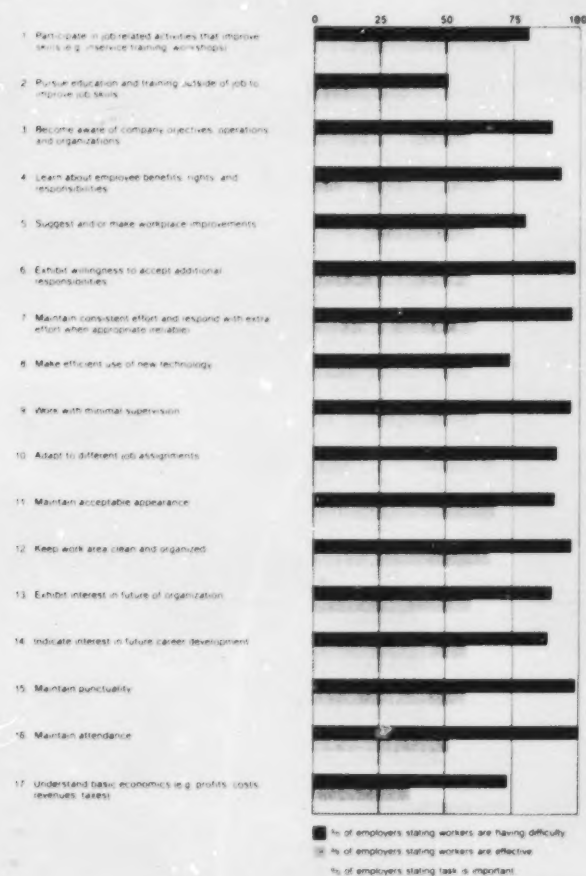
While only 50% of the employers indicated that analyzing and synthesizing information were important skills in entry level positions, a majority of employers indicated that these skills grow in importance as the employees become involved in more responsible decision making positions in a company. These are skills that employers expected young people to develop while in high school.

Entry level employees were most effective in obtaining resources needed to carry out work, conducting activities in appropriate sequence, recognizing the effects of changing quantity or quality, and delivering work on time.

Identifying alternative approaches and summarizing and drawing conclusions were the two problem-solving tasks with which young employees had the most difficulty. Both these tasks were usually essential to satisfactorily solving on-the-job problems. In addition, from 40% to 50% of the employers found that entry level employees had some difficulty with the other tasks listed in problem solving (numbers 1, 2, 6, 7, 9, 10, 11 and 14 on the problem-solving task list).

Considering the importance of problem-solving tasks in entry level jobs, it was apparent that young people need to have more experiences in high school that will help them develop the reasoning and problem-solving skills required in entry level positions.

Job Retention/Career Development Tasks



While the employers considered pursuing further education outside of the job important, they considered all of the other Job Retention and Career Development Goals as being very important.

Approximately 60 to 70% of the employers indicated that entry level employees were usually effective in most of the job retention/career development tasks. This came as a surprise considering the general comments that are often made about the work habits of young people. However, many of the employers interviewed indicated that a young entry level employee's continued employment was often based on his or her willingness to accept additional responsibilities, to respond with extra effort when necessary, to work with minimal supervision, to maintain acceptable appearance, to be on time, and to maintain attendance. Employers indicated that young people usually accepted these conditions when they were emphasized from the first

day of employment as essential for keeping a job. In addition, young employees must be effective in these job retention and career development tasks in order to be considered for promotion.

Some employers had experienced some difficulty with worker's poor attendance and mentioned that young people would often call in sick on Fridays or frequently attempt to get time off from work in order to take care of personal matters.

A better understanding of basic economics was an area that all employers would like young employees to have. Employers felt that in order for their workers to understand the necessity for quality work and the reasons for the step-by-step processes for promotion, they must understand the costs of doing business (including the costs that arise out of poor work habits) and the type of wages that a company can pay to cover these costs. Employers would like to see every high school student exposed to courses that provided information on how both large and small businesses are operated, how they are organized, and how they survive in a highly competitive market.

Results of Employee Interviews

Questions Asked of Employees

Each entry level employee interviewed was asked a series of questions that covered the same basic employment tasks reviewed with their employers.

Employees were asked to indicate the importance of various tasks in their present positions and to rate their preparation in high school for these tasks on a scale ranging from excellent to no preparation. These employees were also asked a series of open-ended questions about the types of courses, extracurricular activities and out-of-school experiences that helped them succeed in their present positions.

Following is a listing of entry level positions frequently encountered during the study:

Receptionist	Prep cook
Office clerk	Hospital porter
Typing clerk	Teacher's aide
Accounting clerk	Waiter/waitress
Mail clerk	Farm/ranch hand
Youth Counselor	Grounds keeper
Ski instructor	Service station attendant
Housekeeper (hotel)	Cashier/checker
Maintenance worker	Stock clerk
Utility worker	Credit clerk
Construction laborer	Department clerk
Construction apprentice	Courtesy clerk
Teller	Delivery clerk
Factory worker	

Importance of Entry Level Tasks

The following table displays the tasks in groupings according to the percent of employees identifying tasks as very important or important. Four categories of percent ranges were selected to aid in illustrating the degree of importance of the various tasks.

Table 1
EMPLOYEES' RATINGS OF JOB TASK IMPORTANCE

Percent of Employees Identifying Tasks as Very Important/Important				
	100-75%	75-50%	50-25%	25-0%
Reading	(1) Details (4) Instructions (5) Comprehension	(2) Pictorial (3) Source (6) Accuracy		
Mathematics	(1) Calculations	(2) Estimating (4) Pictorial	(3) Costing (5) Constructions (6) Measurement (7) Formulas (9) Calculators	
Computer			(1) Awareness (2) Input (3) Access	(4) Programming (5) Word Processing
Writing	(1) Handwriting (2) Forms	(3) Sentences (4) Organization (6) Proofreading		(5) Reports
Communication	(1) Instructions (2) Explanations (3) Reporting (4) Clarity (8) Listening	(4) Conversations (7) Vocabulary	(5) Presentations	
Manual/Perceptual		(1) Assemble/construct (2) Hand tools (5) Power equipment	(3) Visuals (4) Keyboard	
Problem Solving	Majority of Tasks (1-5, 8-11, 13, 14)	(6) Organize (7) Analyze (12) Summarize		
Job Retention/ Career Development	Majority of Tasks (3-16)	(1) Inservice (2) Education (17) Economics		

Due to limited space on the table, tasks are described with one or two-word descriptors. The numbers in parentheses next to the descriptors correspond to the numbers on the task statements listed in Appendix C. Any reader wishing to see the complete task statement can refer to pages III-1 to III-2.

Considerable difference might be expected between the ratings of employers and employees on the relative importance of entry level tasks. Employers were asked to respond to the importance of tasks handled by all their entry level employees working in a number of different work activities, while employees responded on the basis of their specific responsibilities. However, the data indicated that there was significant agreement regarding the importance of tasks between employers and employees.

A majority of the tasks covered in the interviews were considered very important or important by employees. These ratings were very close to those of employers. Those tasks considered less important by employees were also areas that employers generally rated as less important in their ratings.

Employers rated most of the math tasks somewhat higher in importance than employees. Employees in retail and service businesses often indicated that math skills were not that important because the register or calculator handled all the math calculations for them. Employers, on the other hand, expected employees to be able to handle basic calculations, citing that there were always cases of breakdowns in calculating equipment or special sales where the employee would have to handle manual calculations.

Employees rated the analyzing and synthesizing information tasks as very important in their positions, while employers did not feel that entry level employees were required to perform these tasks very often. Employers appeared to think of analyzing and synthesizing information as a high level task that usually fell within the responsibilities of technical employees, supervisors and managers. Young entry level employees, on the other hand, often considered their work as involving some analyzing and synthesizing skills.

In the areas that employees rated as less important - a number of the math tasks and computer tasks, making presentations before groups, writing reports, using keyboard skills - the employees agreed with the employers that these could be very important tasks in positions beyond entry level. They also recognized that in the future, with advances in technology and communications, many of these would probably be required even in entry level positions.

High School Preparation (General Ratings)

Young entry level employees were asked to rate how well their respective high schools prepared them for the tasks on the employee worksheet, according to the following categories:

Excellent Poor
Fair None (no preparation)
Good

Following is a table indicating the ratings of tasks by a majority of the employees interviewed. As in the previous table, the tasks are described in one- or two-word descriptors and the numbers in parentheses correspond to the numbers of the complete statements listed in Appendix C.

Table 2
PREPARATION IN HIGH SCHOOL

Ratings by Majority of Employees		
Area	Task	Rating
Reading	All Tasks (1-6)	Good
Mathematics	(5) Constructions	Fair
	(7) Formulas	Fair
	Other tasks (1-4, 6, 8)	Good
Computer	All Tasks (1-5)	No preparation
Writing	All Tasks (1-6)	Good
Communication	(3) Reporting	Fair
	(4) Conversations	Fair
	(5) Presentations	Fair
	Other tasks (1, 2, 6, 7, 8)	Good
Interpersonal	All Tasks (1-10)	Good
Manual/Perceptual	(3) Visuals	Fair
	Other tasks (1, 2, 4, 5)	Good
Problem Solving/Reasoning	(9) Review	Fair
	Other tasks (1-8, 10-14)	Good
Job Retention/ Career Development	(4) Benefits/rights	Fair
	Other tasks (1-3, 5-17)	Good

According to this table, the entry level employees rated their preparation in high school as good for a majority of the tasks. The only major exception was in the computer area where a majority of the employees indicated they had received no preparation.

This positive attitude towards high school preparation was also suggested by the table in the following section on "Areas of Poor or Limited Preparation," which indicates that for a majority of the tasks (61), less than 11% of employees indicated poor preparation. In addition, among the 19 tasks rated as poor preparation by employees, the highest percentage was only 19%.

The reason for the expressed attitudes toward the high school preparation appeared to be related to sincere feelings on the part of some employees that their preparation was good and a reluctance on the part of many other employees to criticize the schools for their lack of preparation. Many of the employees remarked that the courses needed for developing employment

skills were available, but they simply avoided them or did not take them seriously. The employees attributed this lack of initiative to either their own indecision about job or career directions, their lack of knowledge about job and career opportunities, and/or a desire to take an easy schedule of courses in their senior year.

The young people interviewed in the study often gave the impression that they went through high school without much direction, either avoiding or never coming into contact with courses that would have benefited them once they obtained employment. These young people often attributed their success at work to the fact that they had been placed in an environment where they were required to accept responsibility and in many cases challenged to use their abilities.

Since the interviews were conducted with young people who were identified as successful entry level employees, it might be assumed that this type of person would probably have been a successful student in school and positive about his or her preparation. However, this is not the case for a significant number of the employees interviewed admitted they were not particularly successful in high school.

Responding to the employment tasks listed on the employee worksheet was a difficult process for the young people interviewed. It was apparent that many of the young people had never thought of their high school preparation in terms of specific employment tasks. They could comment about their preparation in terms of courses or the major skill areas but when asked to rate their preparation for specific tasks, they had difficulty identifying when and where they had received instruction in the skills involved in these tasks. A number of tasks in the job retention and career development area were stated in terms very specific to tasks one would encounter on a job and had to be placed in a format more related to school functions in order for these tasks to be rated in terms of school preparation by the employees.

The reluctance of employees to be critical of their high school preparation and the difficulties in responding to task statements may account for some of the differences between employees' positive ratings of their preparation and employers' observations that a significant number of young people were not well prepared in important skills. However, it also appeared that in many cases young entry level employees were just not aware that they were not adequately prepared. Most of the employees did not seem to feel that they had any difficulty with the tasks they were asked to do. In fact some of the employees felt that the entry level tasks were very simple. Based on these responses, it appeared that employers were not always providing specific information to the employees concerning inadequacies in performing job tasks.

Areas of Poor or Limited Preparation

Following is a table outlining tasks which were mentioned by more than 10% of the employees as tasks where there was poor or no preparation in high school. One or two-word descriptors similar to those used in Table 1 in this section were used in place of the full task statements. The percentage of employees indicating poor or no experience is listed for each task in the table. Following this table is a commentary based on discussions with young entry level employees regarding the tasks in the table.

Table 3
EMPLOYEE RATINGS OF HIGH SCHOOL PREPARATION

AREA	TASK	Areas of Poor Preparation by More Than 10% of Employees		TASK	Areas of No Preparation by More Than 10% of Employees	
		% RATING POOR PREPARATION			% RATING NO PREPARATION	
Reading	None	—		(6) Accuracy	16	
Mathematics	(2) Estimating	12		(2) Estimating	17	
	(4) Pictorial	11		(5) Constructions	17	
	(7) Formulas	11		(8) Calculators	30	
Computer	(1) Awareness	11		(1) Awareness	56	
	(2) Input	19		(2) Input	42	
	(3) Access	17		(3) Access	51	
				(4) Programming	69	
Writing	(3) Sentences	11		(5) Word processing	75	
	(5) Essays	12		(2) Forms	19	
Communication	None	—		(4) Conversations	26	
Interpersonal	(5) Flexibility	11		(3) Regulations	20	
	(9) Initiative			(4) Customers	20	
				(5) Flexibility	11	
Manual/Perceptual	(3) Visuals	11		(1) Assemble-construct	21	
				(2) Hand tools	20	
				(3) Visuals	21	
				(4) Keyboard	14	
				(5) Power equipment	42	
Problem Solving/ Reasoning	(9) Review	11		(14) New ideas	15	
	(14) New ideas	11				
Job Retention/ Career Development	(2) Education	12		(2) Education	12	
	(3) Operations	15		(3) Operations	25	
	(5) Improvements	19		(4) Benefits rights	11	
	(6) Responsibilities	14		(5) Improvements	17	
	(9) Independence	11		(6) New technology	22	
	(11) Future company	12		(11) Future school	20	
				(17) Economics	25	

Reading tasks. Less than 10% of the employees interviewed expressed any serious concern over their preparation in reading in high school. However, they did express difficulty with the transition from the types of reading encountered in high school to the types of reading required in their entry level positions. On the job, young employees were often required to read instructional or procedural manuals that required understanding many details and following step-by-step processes. The young employees stated that they had been exposed to some detailed instructional reading in their math, science and vocational courses; however, a majority of their reading in high school involved identifying main ideas, making comparisons, generalizations, inferences and other skills of general comprehension. Many of the employees indicated that they found it difficult to concentrate and become very interested in the type of information they found in employee handbooks and manuals.

Sixteen percent of the employees indicated they had not received any instruction in reading accurately. These employees were referring to the fact that they had not had a specific course in high school in rapid

and accurate reading. Most of the employees felt that their reading experiences in high school had been adequate to prepare them for the level of reading accuracy they were required to have in their entry level position. However, a great many of the employees interviewed anticipated that their reading assignments would become more difficult as they progressed in a company, and wished that they had more experience in high school in learning how to read complex materials accurately and quickly.

Mathematics tasks. Around 30% of the employees indicated they had poor or limited preparation in high school in estimating quantities needed to perform a task. These employees indicated that estimating was a very important skill in their entry level positions and they wished more experiences had been provided in this area while in high school.

Seventeen percent of the employees felt they had had no preparation in high school in constructing diagrams and charts using numerical calculation. These employees appeared to be young people who had very limited exposure to mathematics, science and vocational programs in high school.

Thirty percent of the employees indicated no preparation in the use of calculators in high school. While these employees stated that using a calculator was a great asset in doing mathematical work, they also noted that it was a skill that was easily acquired on the job.

Although no direct questions were asked about student attitudes toward specific courses in high school, some of the employees expressed difficulty with the subject of geometry. These employees often worked in areas such as construction where skills in working with geometrical concepts were required. They felt school courses in geometry were too theoretical and should be made more useful and interesting by having students work with practical problems in measurement and design.

Computer tasks. Approximately 50% of the employees indicated that they did not have any preparation in high school in the areas of computer awareness or inputting and accessing data from computers. Around 15% of the employees who did have preparation in these tasks considered their preparation as poor.

Approximately 70% of the employees indicated that they did not have any preparation in programming or word processing. Ten percent of those employees who did have instruction in these two tasks felt their instruction was poor.

While only a limited number of entry level positions currently required the use of computer skills, almost every young person interviewed recognized the growing importance of the computer and felt that good basic preparation in this area would be a great asset to any young person entering the work force even at the present time. They also felt that some knowledge of

programming and word processing would add significantly to a young person's qualifications for promotion beyond entry level positions.

Writing tasks. Less than thirteen percent of the employees interviewed expressed any serious concern about their preparation in writing. However, as in the case of reading, employees recognized there was a considerable difference in the types of writing done in high school and the writing required at work. Despite their feeling that they had sufficient exposure in high school to general writing skills, many employees indicated it would have been valuable to have had more experience in the type of writing required on the job such as completing forms and writing brief concise messages.

It is interesting that the employees did not seem to recognize the writing deficiencies to which employers consistently referred. It appeared that young entry level employees did not recognize the seriousness of their writing errors, at least in terms of the expectations of employers.

Communication Skills. Indications of "poor" or "no preparation" across the tasks in this area were generally 10% or less. As in the case of other academic skills discussed in the report, young people felt that they were generally adequately prepared by the high school for the tasks they were required to do in entry level positions and were not aware of any of the concerns of their employers in terms of communication skills.

The employees interviewed felt that their ability to stay on the topic in school-related conversations was often related to the amount of discipline and/or interest in the classroom. Approximately 25% of the employees interviewed indicated that they would have benefited from a greater adherence to the course content on the part of both instructors and students.

Interpersonal tasks. Twenty percent of the employees felt that they did not adequately follow regulations in school. These employees often indicated that they wished they had developed more self discipline and greater appreciation for the importance of rules and regulations.

Twenty percent of the employees also noted that they didn't have any experience in cooperating with people outside the school as part of either the academic or extracurricular program. Many of the employees expressed an interest in seeing more cooperative programs in the school which would bring students into contact with employers and personnel from community organizations. Some of the young people interviewed indicated that their entry level job was their first experience in working with adults outside the family or the school.

Manual/Perceptual Tasks. Those employees who had taken vocational courses in high school, indicated that these courses significantly helped them to handle manual/perceptual tasks on the job. It is surprising that

employers found so many young employees proficient in manual/perceptual tasks when 20% of the employees indicated that they had not had any preparation in high school in constructing or assembling materials, using specific hand tools, or developing visual presentations. Moreover, 42% of the employees stated that they had had no experience in using any type of power equipment. However, in discussions with young employees, it became apparent that they had gained a great deal of experience in this area through working with parents on a project at home, or working at a job after school where they were required to do some manual/perceptual tasks. In fact, employees indicated that in terms of developing employment skills, their experiences outside the school were often just as important as the experiences they had in school.

Problem Solving/Reasoning Tasks. Twenty-eight percent of the employees noted that they had either inadequate or limited experience in devising new ways of doing things while in school. While these employees admitted that this type of activity often required initiative on their part, they still felt that they were seldom encouraged in high school to do creative or imaginative thinking.

Job Retention/Career Development Tasks. Approximately 20% of the employees interviewed indicated that they were not encouraged by the school to pursue education after high school. Some of the employees felt that the school focused most of its career counseling efforts on the college-bound students. Some employees also indicated that when a student had a poor academic record, there was very little encouragement to continue post secondary education.

Deficiencies in the area of basic economics were evidenced by preparation ratings for a number of tasks concerned with understanding the economics of the work world. Forty percent of the employees indicated that they had either poor or no preparation in understanding how companies operate or are organized. Thirty-three percent indicated that they had no knowledge about employee benefits or rights. Twenty-five percent of the employees indicated they had no preparation in basic economics in high school.

There were indications that the schools may not involve students adequately in school issues that would improve the school for both present or future students. Thirty-six percent of the employees indicated they had little opportunity to support or make workplace improvements while in high school and 32% of the employees felt that they didn't have many opportunities to exhibit or express an interest in the future of the school.

The use of technology was also an area of concern. Twenty-two percent of the employees indicated that they did not have experiences in the use of new technology. This concern is also supported by the data previously reported on computer preparation which indicated very limited preparation for many young entry level employees.

Responses to Open-Ended Questions.

Following are the open-ended questions used during the interviews with summaries of the data obtained from these questions.

Question A. Which high school course work best prepared you for your entry level job? Why were these experiences important?

Table 4 on the following page provides a summary of the employee comments concerning course content that best prepared them for their entry level positions. The mathematics, language arts, business and vocational areas and their content were mentioned as being important by most employees. The other areas were mentioned less frequently.

Question B. What other high school activities best prepared you for your entry level job? Why were these experiences important?

Following is a list of activities most frequently mentioned by young employees and a statement about the importance of these activities.

Extracurricular Activities

Athletics (all sport areas)

School/Student Support Programs

Teacher and office aides
Cheerleading, band, orchestra
School/student publications
Special events
Student Government

Special Programs (Outward Bound, class and school trips)

Clubs and Organizations

Future Farmers of America
Future Business Leaders of America
Home Economics Related Occupations of America
Vocational Industrial Clubs of America
Reserve Officers Training Corps.
Rodeo, chess, journalism, Pep clubs

These types of activities were extremely important to successful young entry level employees because they provided the following experiences and skills:

- The ability to work with others in a cooperative effort
- A sense of the importance of organization and team work
- A sense of the importance of giving one's best effort
- An opportunity to take responsibility for one's own actions

- A sense of the benefits of doing a job well
- An opportunity to use initiative and to develop leadership abilities
- An opportunity to be with people with similar interests
- A practical hands-on experience in activities that might be directly related to future career or job opportunities

Question C. Which out-of-school experiences best prepared you for your entry level job? Why were these experiences important?

Following is a list of experiences that were frequently mentioned during the interviews with entry level employees and a statement about their importance.

Out-of-School Experiences

Employment. The jobs listed below were often cited as after school employment or assignments in cooperative school programs:

Service station attendant
Hospital aide
Child care
Restaurant waiter/waitress, bus person, prep cook
Construction laborer
Clerk in a food market
Farm/ranch hand
Janitor/yard person
Assistant in small manufacturing plant
Retail or department store clerk

Family responsibilities. Many of the employees indicated they had experience with regular work responsibilities at home such as cleaning, child care, working in their parent's private business (often a small shop or on a farm) or being involved in a family project (e.g., construction of a home or repair of a family car).

Community activities. A number of the young people interviewed indicated that they had valuable work experience by participating in activities conducted by churches, community centers, and programs such as Junior Achievement, 4-H and the Scouts.

Hobbies. These were particular to the interests of the students and many times had some relationship to career or job interests.

Work experiences outside of the school were noted as particularly important in developing employment skills that later proved essential on the job. These experiences provided young people with a sense of what the work world is like. Activities with parents often provided young people with a sense of discipline and responsibility. Involvement in community programs and personal interests (hobbies) were very helpful in developing interpersonal and/or manual perceptual skills later important on the job.

Table 4

SUMMARY OF EMPLOYEE COMMENTS CONCERNING COURSES THAT BEST PREPARED THEM FOR ENTRY LEVEL POSITIONS

AREA	COURSE CONTENT	IMPORTANCE
Mathematics	General (applied mathematics)	Almost every employee indicated a need to be able to handle basic calculations
	Business, vocational math	Courses provided practical experience in problem solving
	Algebra, geometry, computer science	In positions requiring technical skills, the mathematical principles taught in these courses were essential to success
Language arts	Composition, grammar, vocabulary, media, oral communications (drama, debate, speech)	Successful entry level employees were able to communicate both orally and in writing, and understood the importance of being able to communicate
	Literature, reading	The ability to read was a critical skill in entry level positions
Business (distributive education, cooperative office education)	Accounting, record/bookkeeping, typing, shorthand, office procedures, business machines (word processing)	These courses prepared young people for skills that were required in many entry level positions in business and industry
Vocational (technical)	Agriculture (horticulture), appliance repair, auto mechanics, building trades, woodshop, cosmetology, data processing, drafting, electronics, radio/TV, graphic communications, health occupations, metal, welding, machine technology, restaurant arts	These courses prepared young people for the skills needed in specific occupations, often providing the practical applications of these skills through cooperative experiences. Employees noted that they often obtained practical experiences in the basic skills of math, reading and writing through these courses
Home Economics	Child development, clothing and textiles, food service	Young people acquired skills and understandings that were important in a number of service oriented entry level jobs
Consumer economics	Money management, independent living	Young people learned practical skills that helped them to manage their money and their personal affairs
Career	Career Development	Extremely important in providing job seeking skills as well as providing much needed career counseling
Science	Biology, chemistry, physics, earth science	Very important in the development of problem solving and reasoning skills that could be applied in any entry level position. Scientific principles had direct application in many technical job positions.
Art	Ceramics, jewelry, drawing	Aided young people in the development of manual-perceptual abilities. Helped to develop a sense of the importance of quality and precise workmanship.
Social sciences	Economics	Very important an understanding of the factors that affect the development and organization of businesses and industries. Economics also provided young people with some understanding of the opportunities available to them in the world of work.
	Psychology	Helped young people in developing communication, reasoning and future planning skills. They also provided young people with a sense of how our society is organized.
	Spanish	Rated by a few employees as being helpful in communicating with fellow employees
Language		

Question D. What additions or changes in your high school would have helped to prepare you for your entry level job?

Although this question was addressed in terms of an entry level position, most of the young people interviewed responded in terms of their career interests, not just their current job responsibilities.

Employees felt they would have been better prepared for employment if they had more experience in the following areas:

- Setting career goals and recognizing opportunities for continuing education
- Selecting coursework in high school that related strengths and interests to career objectives and opportunities
- Reading detailed and technical materials accurately and quickly
- Handling practical mathematical tasks using problem-solving skills
- Understanding and operating computers and other new forms of technology
- Acquiring interpersonal and communication (oral and written) skills that would be helpful in employment situations
- Understanding how to handle consumer economic situations faced as a citizen and employee
- Understanding how both large and small companies are organized and how they operate
- Participating in cooperative work programs with employers and other adults from the community
- Developing strategies for finding and obtaining challenging employment
- Handling criticism and demonstrating initiative when working with other individuals
- Understanding future trends in society and the needs for the future
- Developing strategies and demonstrating initiative when working with other individuals
- Using creative and imaginative thinking to develop new ways of doing things
- Developing self discipline and a sense of responsibility for one's own actions

Question E. Which experiences or sources best informed you about your potential entry level position?

Family members were by far the most important source of information and guidance both in terms of career direction and potential employment according to the young people interviewed. Family members often were acquainted with or worked for the employer with whom the young person found employment. Next to family, information about potential jobs was obtained most often from personal friends. School personnel (in particular, a teacher who had taken a personal interest in the young person) and community agencies (i.e., youth training and employment programs, adolescent centers) were important sources of information about entry level positions. Some of the young people indicated that their employment resulted from a lifelong interest which in some cases had never been recognized by either parents or the school.

SECTION II. SURVEY OF MILITARY PERSONNEL

Conduct of Survey

Selection of Sample

The Employment Skills Survey also included interviews with 45 military and 8 civilian instructors regarding the basic employment skills of young recruits. In addition, interviews were conducted with 57 young recruits to determine their employment skill preparation as well as activities and courses in high school that helped them in entry level training in the service.

Information was obtained about the skills of recruits at the point at which they were receiving entry level job training.

In order to obtain a sample from the four major military branches (Air Force, Army, Navy, Marines), interviews were conducted at the following bases which have facilities for providing young recruits with entry level training:

- Lowry Air Force Base; Aurora, Colorado
- Peterson Air Force Base; Colorado Springs, Colorado
- Fort Carson Army Base; Colorado Springs, Colorado
- Naval Training Center; San Diego, California
- Camp Pendleton Marine Base; Oceanside, California

Following is a list of the types of specialized training programs that were selected for the survey.

Amphibious operations
Administration
Audiovisual/media
Communications
Construction
Data processing
Electronics
Financial services
Ground maintenance
Instrumentation
Intelligence
Mess Management
Supply
Vehicle Maintenance

Interviews were also conducted with instructors and recruits in programs designed to remediate and update general academic skills.

Interviews with military instructors were not focused solely on recruits from Colorado high schools. Military instructors supervise and train young recruits from many areas of the country and were not able to separate the effectiveness of recruits from Colorado high schools from those of high schools in other parts of the country. The military was not able to always identify a complete sample of recruits from Colorado for interviews. Approximately 50% of the recruits interviewed were from Colorado high schools.

Instruments Used During the Survey

Employer and employee worksheets identical to those used in interviewing private sector employers and entry level employees were used in interviewing the military instructors and recruits.

The instructors were asked to respond to the list of 80 employment tasks (see Appendix C) in terms of the degree of importance of each task in their training programs and the effectiveness of young recruits in accomplishing these tasks.

Young recruits were asked to respond to these 80 tasks in terms of importance in their entry level positions and to make observations about their high school preparation for these tasks.

Interviews were also conducted with personnel from the Military Enlistment Processing Station in Denver, Colorado in order to determine enlistment requirements.

Dialogue With Military Personnel

Military personnel were extremely cooperative in providing access to both instructors and recruits at the bases involved in the survey. The personnel responsible for developing and supervising the training programs at these bases indicated that they were very interested in sharing their training techniques with public school educators, if such cooperation would result in young people being better prepared in skills needed in employment. Appendix A lists the military organizations involved in the survey and the military personnel helpful in arranging the interviews.

Enlistment Requirements

Enlistment programs vary greatly between the military services. Each service has its own recruiters who determine eligibility of applicants for specific training assignments.

After preliminary processing by local recruiters, applicants are sent to a Military Enlistment Processing Station (MEPS) where the applicants undergo a physical examination and take the Armed Services Vocational Aptitude Battery (ASVAB). The applicants are tested in the following areas:

General information
Numerical operations
Attention to detail
Word knowledge
Arithmetic reasoning
Space perception
Mathematics knowledge
Electronic information
Mechanical comprehension
General science
Shop information
Automotive information

The scores from these tests are used to construct aptitude composites in the following six ability areas:

Verbal
Mathematics
Perceptual speed
Mechanical
Trade technical
Academic ability

These composite scores along with the applicant's high school records are used by military personnel to make training and job assignments. Each service has different requirements for its service schools and job positions depending on the particular needs of the organization.

Recruiting personnel involved in the survey indicated that all branches of the service were tightening their enlistment requirements due to the large number of applicants and the demands for personnel with good academic skills. A high school diploma was preferred for enlistees and recruiters were not accepting young people for enlistment with poor academic records and low scores on the ASVAB.

Results of Instructor Interviews

Presentation of Data

Following are two tables summarizing the results of the interviews with military instructors.

Table 5 indicates the military instructors' ratings of importance for all the tasks discussed during the survey. This table displays the tasks in groupings according to the percent of instructors identifying the tasks as very important or important. The tasks are described with one- or two-word descriptors. The numbers in the parentheses next to the descriptors correspond to the numbers on the fully described task statements in Appendix C.

Table 6 on the following page shows the percent of instructors indicating recruit difficulty in handling entry level training tasks. Each category on the chart represents 10 percentage points. The tasks have been placed in a category that covers the percent of instructors indicating difficulty with that task in entry level positions.

Following these tables is a brief explanation of the results for each major area.

Table 5
INSTRUCTOR RATINGS OF JOB TASK IMPORTANCE

	Percent of Instructors Identifying Tasks as Very Important-Important			
	100-75%	75-50%	50-25%	25-0%
Reading	All tasks (1-6)			
Mathematics		Majority of all tasks	(3) Counting	
Computer			(1) Awareness (2) Input	(4) Programming (5) Word Processing
Writing	(1) Handwriting (2) Forms	(3) Sentences (4) Organization (6) Proofreading	(5) Reports	
Communication	(2) Explanations (4) Conversation (6) Clarity (7) Vocabulary (8) Listening	(1) Instructions (3) Reporting (5) Presentations		
Interpersonal	All tasks (1-10)			
Manual/Perceptual	(2) Hand tools (5) Power equipment	(3) Assemble/construct	(1) Visuals (4) Keyboard	
Problem Solving	Majority of tasks (1-4, 6, 9-11)	(5) Changes (7) Analyze (8) Alternatives		
Job Retention/ Career Development	Majority of tasks (1, 3, 4, 6-16)	(2) Education (5) Improvements	(17) Economics	

Table 6

**PERCENT OF INSTRUCTORS INDICATING RECRUITS HAVING DIFFICULTY
IN HANDLING ENTRY LEVEL TRAINING TASKS**

	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%
A. Reading				(5) Compre- hension	(1) Details (2) Pictorial (3) Source (6) Accuracy		(4) Direc- tions			
B. Mathematics					(3) Costing (7) Formulas	(1) Calcula- tions (2) Estim- ating (5) Con- structions (6) Measure- ment (8) Calcula- tors	(4) Pictorial			
C. Computer			(4) Program- ming (5) Word processing	(2) Input (3) Access		(1) Aware- ness				
D. Writing		(5) Reports	(3) Sentences (4) Organiza- tion (6) Proof- reading			(1) Hand- writing (2) Forms				
E. Communications				(5) Presenta- tion (8) Listening	(3) Reporting (7) Vocabu- lary	(1) Instruc- tions (2) Explana- tions	(4) Conversa- tion (6) Clarity			
F. Interpersonal				(9) Initia- tive	(7) Tolerance (8) Super- vision (10) Authority	(4) Customers (5) Flexi- bility (6) Clarifi- cation	(1) Coopera- tion (2) Team	(3) Regula- tions		
G. Manual/ Perceptual					(3) Visuals (4) Keyboard	(1) Assemble/ construct		(2) Hand tools (5) Power equipment		
H. Problem- Solving				(7) Analyze (8) Alterna- tives	(1) Act vi- ties (5) Changes (9) Review (10) Accuracy (14) New ideas	(2) Proce- dures (3) Resources (4) Sequence (6) Organize (12) Conclusions	(11) Deficien- cies	(13) Time		
I. Job Retention/ Retention				(9) Indepen- dence (17) Economics	(2) Education (6) Responsi- bilities (8) Techno- logy (13) Future organiza- tion (14) Future career	(3) Opera- tions (5) Improve- ments (7) Effort (15) Punctual- ity	(10) Adapta- bility (11) Appearance	(1) Inservice (4) Benefits/ rights (12) Organiza- tion	(16) Atten- dance	

Reading Tasks

Instructors rated all of the reading tasks as very important. Fifty to sixty percent of the instructors indicated the recruits were having difficulty with all of the reading tasks with the exception of following the intent of written instructions. According to the instructors, entry level trainees were most effective in reading and following instructions and had the most difficulty with interpreting ideas and concepts (comprehension). Instructors often commented that recruits had difficulty concentrating on their reading long enough to obtain the main idea of a passage or acquire the steps in a process. As in the case of the private sector jobs, the reading materials required in training programs were often detailed and technical.

Mathematical tasks

All of the mathematical tasks covered in the survey were considered important by the instructors, with the exception of calculating costs. Instructors indicated that while calculating costs was not an important task in an entry level training position, it was usually required at some future time.

Forty to fifty percent of the instructors indicated that recruits had some difficulty with all the mathematical tasks. The most serious areas were in calculations involving decimals and fractions, the use of formulas, measurements involving metrics, making estimations and using logical processes in solving practical problems. Instructors also noted that recruits had difficulty reading mathematical problems presented during training.

Computer Tasks

Computer tasks were not considered by most of the instructors to be very important entry level training tasks. However, in the finance, supply and data processing training programs, where the use of computers was required, instructors stated that recruits had very little knowledge about computers and initially had difficulty in operating them.

Writing Tasks

Instructors were very critical of the ability of recruits to express themselves in writing. From 70 to 80% of the instructors found that recruits in their programs had difficulty writing sentences, organizing ideas, writing simple reports and correcting errors in English. During training programs, recruits were required to do a considerable amount of writing including filling out forms, responding to programmed materials, taking notes during training sessions, answering questions on exams and completing various logs.

Communication Tasks.

All of the communication tasks were considered important by the instructors. Recruits were most effective in staying on the topic in task-related conversations during training and in expressing themselves clearly.

They were least effective in making presentations before other people and following the intent of oral instructions.

Fifty to sixty percent of the instructors also noted some difficulty in accurately reporting on what others have said and using appropriate vocabulary and grammar.

Interpersonal Tasks

All the interpersonal tasks were considered very important by the instructors. Recruits were most effective in adhering to the regulations and working cooperatively with others. Fifty to sixty percent of the instructors found that recruits had difficulty demonstrating initiative, being patient and tolerant, and accepting constructive criticism.

Manual/Perceptual Tasks

All of the manual/perceptual tasks were considered important by instructors with the exception of keyboard skills. However, as in the case of employers, instructors recognized the growing importance of the use of keyboard skills with the increasing use of computers in training. Instructors found recruits to be effective in using hand tools and power equipment.

Problem Solving/Reasoning Tasks

All the problem-solving tasks were considered important by instructors in entry-level training. Approximately half of the instructors found that recruits had difficulty with problem-solving tasks. Recruits were most effective in getting tasks done on time and correcting deficiencies and were least effective in analyzing and synthesizing information and identifying possible alternative approaches to solutions.

Job Retention/Career Development Tasks

All of the tasks in this area were considered to be important by instructors in training with the exception of understanding basic economics. Instructors considered recruits to be very effective in demonstrating an interest in their training, maintaining acceptable appearance and attendance and acquiring information about the military organization. Instructors noted that recruits did have difficulty in working with minimal supervision and making efficient use of new technology.

Results of Recruit Interviews

Recruits were asked to indicate the importance of various tasks in their training programs and to rate their preparation in high school for these tasks on a scale ranging from excellent to no preparation. These recruits were also asked a series of open-ended questions about the types of courses, extracurricular activities and out-of-school experiences that helped them succeed in their present positions.

Importance of Entry Level Tasks

The ratings of recruits were very similar to those of the instructors with the exception of the following tasks

which were either considered less important or more important by the recruits in relation to ratings by instructors.

Task	Ratings of Recruits in Relation to Ratings by Instructors
• Using source materials and reading accurately	Less important
• Using formulas and operating calculators	Less important
• Correcting errors in writing	Less important
• Reporting accurately on what others have said	Less important
• Staying on topic on conversations	Less important
• Cooperating with clients/customers	Less important
• Using hand tools and power equipment	Less important
• Determining work activities	Less important
• Recognizing change in quality or quantity	More important
• Identifying alternatives	More important

High School Preparation (General Ratings)

Recruits were asked to rate how well their high school prepared them for the tasks on the worksheet according to the following categories:

Excellent
Fair
Good
Poor
None (no preparation)

Following is a table indicating the ratings of a majority of the recruits regarding their high school preparation for the tasks on the interview form.

Table 7
PREPARATION IN HIGH SCHOOL
Ratings by Majority of Military Recruits

Area	Task	Rating
Reading	All tasks (1-6)	Good
Mathematics	All tasks (1-8)	Good
Computer	All tasks (1-5)	No preparation
Writing	All tasks (1-5)	Good
Communication	(6) Clarity (7) Vocabulary All other tasks (1-5, 8)	Excellent Excellent Good
Interpersonal	(4) Customers All other tasks (1-3, 5-10)	Fair Good
Manual/Perceptual	All tasks (1-5)	Good
Problem Solving	(1) Activities (5) Changes (7) Analysis Other tasks (1-4, 6, 8-14)	Fair Fair Fair Good
Job Retention	(2) Education (3) Operations (4) Benefits/rights (5) Improvements (8) New technology (9) Independence All other tasks (1, 6, 7, 9-17)	Fair Fair Fair Fair Fair Fair Good

According to this table, the recruits rated their preparation in high school as good for most of the tasks. The only major exception was in the computer area where a majority of the recruits indicated they had no preparation.

Area of Poor or Limited Preparation

Table 8 sets forth the tasks which were mentioned by more than 10% of the recruits as tasks where there was poor or no preparation in high school.

Following this table is a commentary based on discussions with the young recruits.

Table 8
RECRUIT RATINGS OF HIGH SCHOOL PREPARATION

AREA	TASK	Area of Poor Preparation by More Than 10% of Employees		Area of No Preparation by More Than 10% of Employees	
		% RATING POOR PREPARATION		% RATING NO PREPARATION	
Reading	None	—	None	—	
Mathematics	None	—	(8) Calculators	17	
Computer	None	—	(1) Awareness	53	
			(2) Input	57	
			(3) Access	59	
			(4) Programming	57	
			(5) Word processing	63	
Writing	None	—	(2) Forms	12	
Communication	None	—	(4) Conversations	26	
Interpersonal	(9) Initiative	13	(4) Customers	23	
Manual/Perceptual	(3) Visuals	13	(1) Assemble construct	13	
			(2) Hand tools	13	
			(3) Visuals	12	
			(4) Keyboard	33	
			(5) Power equipment	13	
Problem Solving	(6) Organize	12	None	—	
Job Retention	(1) Operations	14	(2) Education	14	
	(4) Benefits/rights	12	(3) Operations	16	
	(5) Improvements	12	(4) Benefits/rights	12	
	(7) Effort	15	(5) Improvements	18	
	(8) New technology	19	(11) Future career	17	
	(11) Appearance	18	(17) Economics	20	
	(12) Organization	12			
	(14) Future career	12			
	(16) Attendance	13			

Between 50% and 60% of the recruits indicated that they had no preparation in high school in the use of computers or the skills of programming. Sixty-three percent of the recruits indicated that they had no preparation in word processing prior to their training.

Approximately 13% of the recruits indicated that they had no preparation in assembling materials or using hand tools and power equipment. Twenty percent of the recruits indicated that they had poor or no preparation in making visual presentations. Thirty-three percent indicated no preparation in keyboard skills. However, as in the case of the employees, many of the young recruits indicated that they had acquired experience with manual/perceptual tasks in after-school jobs and activities with their parents.

Twenty-five percent of the recruits indicated poor or no preparation in learning about company operations or understanding issues connected with employee rights and responsibilities while in high school. Twenty percent of the recruits indicated that they did not have preparation in basic economics.

Thirty percent of recruits indicated that they had either poor or no preparation in suggesting workplace improvements while in high school and 17% noted there was no involvement in the future of the school.

Nineteen percent of the recruits indicated poor preparation in the use of new technology.

Responses to Open-Ended Questions

Question A. Which high school coursework best prepared you for your entry level training? Why were these experiences important?

Mathematics, language arts, business, science and vocational courses were mentioned most frequently by recruits as important courses in preparing them for tasks required in entry level training. Courses in the social sciences (economics, history and psychology) were mentioned by some of the recruits as important courses. Recruits placed more emphasis on the importance of math and science than did private sector employees, frequently mentioning the value of courses such as algebra, geometry, trigonometry, physics and chemistry. In the vocational area, the recruits noted computer science, electronics, drafting (mechanical drawing) and auto mechanics as particularly valuable courses. Typing and accounting were the most frequently mentioned business courses.

The reasons given for the importance of these courses were the same as those given by employees on page

Question B. What other high school activities best prepared you for your entry level training? Why were these experiences important?

Question C. What out-of-school experiences best prepared you for your entry level training? Why were these experiences important?

The comments of the recruits were similar to those offered by the private sector employees which appear on pages 18. Recruits indicated that school athletics and membership in school clubs and organizations as well as after-school work activities were extremely important in developing skills required in entry level training programs.

Question D. What additions or changes in your high school would have helped to prepare you for your entry level training?

Recruits felt they would have been better prepared for employment if they had more experience in the following areas:

- Selecting coursework in high school that related strengths and interests to career objectives and opportunities
- Reading detailed and technical materials accurately and quickly
- Developing basic math skills and handling practical mathematical tasks using problem-solving skills
- Understanding and operating computers and other new forms of technology
- Developing communication skills, particularly in the area of writing
- Taking technical vocational courses, particularly in the areas of electronics
- Understanding how to handle consumer economics situations faced as a citizen and a military employee
- Developing self-discipline and a sense of responsibility for one's own actions

Question E. Which experiences or sources best informed you about the military as potential employer?

According to the recruits interviewed, their major sources of information about the military came from family members who had been in the service, and military recruiters with whom they came in contact through presentations made in the community or at school.

Training of Recruits

Entry Level Job Training

A young person in the service was often given a considerable amount of responsibility within a relatively short period of time after enlistment. The recruits that were interviewed as part of this survey were usually being trained for positions in which they would be responsible for handling important materials and equipment. The instructors and supervisors indicated that these young people did a good job in handling these responsibilities providing they received thorough training.

In general, the training programs had the following features:

- The programs were initiated and designed on the basis of identified on-the-job skill needs. Education, media and subject matter specialists worked together in developing curriculum guides.
- Instructors were selected on the basis of their demonstrated skills in the area of training and their desire to be instructors. They were given workshops on instructional methods and interpersonal techniques and placed with a master instructor before taking over a program.
- Detailed performance objectives were provided for both instructors and trainees. Instructors knew precisely the information they needed to cover and the recruits knew what they were expected to learn.
- Trainees were tested only on the concepts outlined in the curriculum guide for the program. Trainees having difficulty achieving learning objectives were identified early and provided with necessary remedial assistance.
- There was usually a balance in daily instruction between the theoretical (academic) and laboratory (hands-on) work.
- There was a continuing evaluation of the materials and methods of instruction. Each course was evaluated by students and fellow instructors and reviewed by education and subject matter specialists. There was also feedback from on-the-job supervisors who reacted to the preparation of the young trainees who were sent to them and to the materials used in training recruits for their occupational specialty.

One of the most interesting features of military training programs was the continual need for revision of programs or courses to meet the skill demands generated by changing military operations and the introduction of new techniques and technology. The need to constantly update curricula requires that military organizations have a well-defined system for developing and revising programs.

For example, at the Services School Command at the Naval Training Center in San Diego, California there were 135 technical training courses being provided to meet the needs of the Navy. All the courses were in some state of development or revision. In some cases there were demands for new programs to meet some specific skill need or to provide training for a new piece of equipment. The revisions were based on the suggestions of on-the-job supervisors regarding the skill needs of their occupational specialties and their observations regarding the effectiveness of young

people from the training programs. In addition, the evaluations of instructors and trainees concerning the materials and approaches used during training were considered.

In each course the Service School Command maintained a well-defined system for developing and revising curricula including the following components:

- A project plan that served as the primary tool for assessment and accountability, tracking the development of new courses or the revision of existing courses of instruction. This plan included reasons for development (or revision), impact of development, schedule of development and resource requirements
- A job task inventory that assured that the tasks covered in a course met the requirements of the job
- An instructional management plan that set out the staff and facility requirements, plans for handling changes in student populations, methods of student evaluation and provisions for remediation
- A curriculum outline that provided the instructional objectives and the content covered in a course or program
- A validation plan that outlined how the course or program would be validated as meeting the requirements of the job

The military service also used some sophisticated equipment in training their young people. At the Assault Amphibian School at Camp Pendleton, California, young marines became familiar with the operation of assault vehicles through the use of equipment that presents computerized simulations. This equipment allowed trainees to simulate the operation of a vehicle without the danger of damaging themselves or the vehicle. Once they became thoroughly familiar with the operation of the vehicle in this laboratory setting, they were trained using the actual equipment.

Development of Basic Academic Skills

In addition to entry level job training, the military also provides basic remediation or updating in the basic skills.

At Fort Carson, Colorado, recruits who fell below certain levels in their ASVAB test scores or were identified by the supervisors as having serious deficiencies were assigned to a basic skills program where they received instruction in the areas of basic math (concepts and computation, interpretation of graphs, map reading, consumer problems), reading (word attack and analysis, vocabulary, reading comprehension, reference skills) and language (grammar and usage, spelling, writing, speaking and listening). The basic skills classes were small in size, permitting considerable individual attention and counseling.

Fort Carson also provided an Individual Learning Center where Army personnel could come on their own time and study in any number of areas covering college courses, military subjects and basic skill preparation. The center had a number of educational counselors who worked on a one-to-one basis with the learners and the center was fully equipped with workbook and laboratory materials and audiovisual equipment such as computers, cassette recorders and film-strip projectors.

In terms of updating basic skills, the Naval Training Center in San Diego had a unique program entitled "Boost" designed to upgrade the skills of new recruits and personnel from the Fleet who had been identified as potential officer material but lacked the ASVAB and SAT scores, as well as some of the basic skills, to qualify for an officer training program. In a 12-month period, young personnel enrolled in this program received instruction in the following areas:

- General mathematics, algebra, geometry, trigonometry, calculus

- Introduction to physical sciences, chemistry, physics

- Basic grammar, spelling, usage, composition and rhetoric

- Study/skills — how to study, preparing for exams, outlining, abstracting information, summarizing, understanding problems in math and science, research methods and practices

- Vocabulary, reading improvement, general semantics, language and logic, technical report writing, oral communication, study of literature

According to research conducted by the Navy, the program has resulted in significant increases on ASVAB and SAT scores as well as increases in the skill level of the young people to a point where they are able to qualify for officer training programs.

SECTION III. CAREER AND EMPLOYABILITY SKILLS PROGRAMS IN COLORADO

In Colorado there are numerous existing programs designed to improve the career knowledge and employability skills of young people. It is not possible to describe all of the programs in this report. However, in order to give some sense of the variety of these programs the following examples that came to the attention of the researchers during the survey are briefly described.

Agricultural Science and Mechanics.

At Palisade High School there is a comprehensive program that provides academic, career development and shop practice for high school students interested in agricultural occupations. The curriculum includes obtaining knowledge about and practical experience with:

- Future Farmers of America organization
- Careers in agriculture and related fields
- Use and care of tools
- Climate and weather
- Care and breeding of livestock
- Soil management
- Plant and tree propagation
- Tractor and small engine maintenance
- Welding
- Marketing agricultural products
- Construction of farm/ranch buildings

CONTACT: Curtis Talley, Palisade High School

Career Information.

The Colorado Career Information Service (COCIS) in Longmont offers computer-assisted and manual methods of obtaining current occupational and educational information. The computer version uses a computer terminal and telephone access to information stored in computers throughout the state. The manual version consists of a card-sorting method used with information identical to that in the computer. The following kinds of information are found in COCIS:

- Current Colorado employment levels, salaries, and future job opportunities
- Kinds of training, education, and other requirements needed to enter occupations
- Common sources of printed career information
- Employment information about major employers from all regions of Colorado
- Types of educational and training programs offered in Colorado
- Information on how to conduct a job search
- A process that assists students in relating personal characteristics to job characteristics
- Information for women on career opportunities and sources of career information

CONTACT: Don Rea, COCIS, Longmont

Career Information and Training.

The Delta-Montrose Area Vocational-Technical School offers training in areas such as accounting, basic engine mechanics, building trades, food services, industrial maintenance, mine training, nurse's aide and welding. In addition, the school provides information on the following subjects for schools in Region 10:

- Vocational training
- Financial aid for vocational training
- Job opportunities and employment
- Career planning and development
- Development of a resource center

This information is distributed from a mobile van that makes regular scheduled visits to schools requesting service.

CONTACT: Bill Duncan, Delta-Montrose Area Vocational-Technical School

Communications and Interpersonal Skills in Business.

The Denver Auraria Community College (DACC) offers a course in communications and interpersonal skills in business. Although this course is designed for post-high-school employees and students, the content would be of value to high school instructors interested in increasing their awareness of the business world and/or developing a communications curriculum for the high school. Among the areas covered in this course are:

- Work ethics
- Stress and work
- Written communication
- Decision making
- Managing your career
- Organizing and prioritizing your work
- Oral and nonverbal communication
- Problem solving
- Ethics and values

CONTACT: Joe Kossik, DACC

Communication and Writing Skills.

At Yuma High School, beginning typing students learn basic keyboard skills, applications and operations of computers, word processing skills (origination, proof-reading, editing, formatting) and work with other related technology.

The following materials are used during the instructional program:

- Microcomputer
- Wide variety of computer programs that are extremely user-friendly
- Clippings on computer applications, careers and technology
- Films and video tapes on technology, computers, electronics, communications and careers

Along with regular typing assignments, students use the computer to run one or more short programs that illustrate the computer's capacities (graphics, calculations, sound simulation, word processing). A film or video on technology, careers, computers, electronics or communications is provided on a weekly basis and students have access to a wall display of current clippings on developments in technology and the computer world.

As part of each weekly word processing assignment, the students compose a summary of a clipping, film or video program. This summary includes their observations about the usefulness and application of the ideas presented. The summary becomes part of each student's file on computers, careers and communications, and the word processing skills become part of the student's ability to compose, edit and format for future on-the-job applications.

CONTACT: Julia Dickens, Yuma High School

Communication Between A School District And Employers.

Westminster School District 50 has initiated a program in which high school students are given a computer printout of the major skills covered in a particular program of instruction. The instructor of the course indicates on the printout which of the skills have been satisfactorily acquired by the student. The student then takes the record of skill achievement to the job interview as proof of preparation in employability skills. After approximately six months of employment, the employer comments on the job abilities of the student in terms of the skills listed on the computer printout. These comments are then returned to the school and considered with other employer observations in evaluating the effectiveness of the instructional program.

CONTACT: Dr. Michael Massarotti, Westminster School District 50

Community Agency/School Cooperation.

In the Alamosa area, there are a number of community agencies that cooperate with the San Luis Valley Area Vocational School and Alamosa High School in providing career counseling and employability skills training. Following is a brief description of some of these community agencies:

- **Adolescent Project** provides comprehensive health care services to San Luis Valley adolescents including job preparation and job readiness classes, an employment opportunity hot line and information exchange, and group meetings dealing with a wide range of basic living skills.

CONTACT: Joleen Mannon, Adolescent project

- **The Center Emiliano Zapata de Aztlan, Inc.** provides career education counseling, vocational counseling, graduate school information and technical assistance with the application process. Assistance is also provided in applying for Adult Basic Education, General Education Development (GED), and High School Equivalency Programs. The project works directly with a target population that includes high school students, high school dropouts, high school graduates who are not realizing their full potential and adults who need educational assistance.

CONTACT: Larry Ortega, CEZA

- **Rocky Mountain SER** contains summer employment for eligible youths, ages 14-21, and also assist high school students in obtaining on-the-job training after school and/or weekends. Labor market orientations including job seeking skills, labor market information, GED and postsecondary education information, and assertive training are provided for both adults and youths.

CONTACT: Jorge Amaya, Rocky Mountain SER

- **Solar Training and Employment Program (STEP)** offers presentations and energy education materials to students, teachers, counselors and school administrators; a graduate course at Adams State College in energy conservation and solar studies, and a summer training and employment program for high school students and high school teachers in the area of energy conservation.

CONTACT: Akira Kawanabe, Architect & Associates

Cooperative Counseling.

At La Junta High School, each entering freshman student is involved in a career counseling session with his or her parent(s) and a teacher. Each teacher is responsible for meeting separately with approximately five students and their parent(s). The teacher is supplied with information about each student's prior performance (grades, test results, teacher observations) and course requirements. During the counseling session, the student, parent(s) and teacher must agree on courses to be taken during the year and sign an agreement indicating the track (college preparatory, business, vocational or general) that the student will follow. The guidance counselor reviews the decisions of the group to be sure that basic requirements are being met.

CONTACT: Darius Miller, La Junta High School

Cooperative Work Training.

The Metropolitan Youth Education Center of Denver Public Schools works cooperatively with the community to provide on-the-job training for youths in semi-skilled or service occupations. Students enrolled in this program attend school a minimum of 15 periods a week. The time spent in school is devoted to subjects that upgrade a student's employability skills. The student also receives training in the basic skills of an occupation at a work training station in the community. Students receive pay for on-the-job activities at the same rate that would be paid any part-time beginner. Students also receive academic credit based on the number of hours on the job. Each student is evaluated by his or her employer and these evaluations are considered by the school in making instructional decisions.

CONTACT: Morris Evans, Metropolitan Youth Education Center

Economic Awareness.

The Junior Achievement Program in Colorado Springs provides a number of projects designed to increase the career and economic awareness of young students. Following is a brief description of some of these programs:

- **Business Basics.** An economic awareness program for 5th and 6th grade students. Four one-hour units are presented by a high school student trained by Junior Achievement.
- **Project Business.** A program that brings the resources of business into the classroom to make 8th and 9th grade students aware of the basic workings of the business community. There are seven topics each of which takes an average of two to three class periods: The Nature of Economics, The American Economy and Its Problems, Money and Banking, The U.S. Market System, Financial Statements, Choosing a Career and Consumerism.
- **Applied Economics.** An elective course for high school junior and seniors. A one-semester course that meets for five days per week, with an Applied Economics consultant visiting the class one day per week. The course emphasizes the practical application of economic principles and relies heavily on experience-based learning.
- **Junior Achievement.** A program where high school students operate a small business under the guidance of business advisors. This program takes a young student through all aspects of running a business: planning, organization, financing, advertising, production and distribution of a product line.

CONTACT: Patricia Crouse, Junior Achievement - Colorado Springs

Employment Skills Development/Residential Program.

At the Colorado Boys Ranch in La Junta, young adolescents 16 to 18 admitted to the residential program learn to meet the work demands of society by being involved in a learning program that provides the following:

- A comprehensive educational assessment for each student to determine academic needs
- The development of an individualized educational (vocational) program for each student
- The provision of information, resources and guidance in vocational planning and decision making
- Participation in a series of planned on-campus work projects designed to teach basic work habits and skills
- Information and guidance by contact with employers through Community Speakers Bureau and general shadowing experiences
- Participation in a minimum of one off-campus outside work experience related to individual aptitudes or interests

CONTACT: Chuck Wallin, Colorado Boys Ranch

Life Skills Approach to Preparation in Work.

At Lakewood High School, there is a program conducted by Paul Evans, a career specialist, entitled "World of Work." This program provides experiences for high school students in life skills that affect career decisions and on-the-job behavior. Following are some of the areas covered in this program:

- Aptitude and interest testing
- Areas of training in the state of Colorado
- Colorado Career Information System (COCIS)
- Consumer skills (e.g., banking, budgeting, purchasing, insurance)
- Job opportunities
- Application/interview process
- Career decision making
- Marriage and choosing a mate
- Drug and alcohol information
- Attitudes
- Handling pressure

CONTACT: Paul Evans, Lakewood High School

Marketing and Distributive Education.

The San Juan Basin Area Vocational-Technical School in Cortez has a marketing and distributive education program that covers many of the skills identified by employers as important in handling an entry level position. The curriculum covers the following areas:

- Business Math
- Business Machines
- Business Organization
- Business Law

- Finance and Credit
- Advertising
- Sales
- Job Application and Interview
- Marketing Accounting
- Business Locations and Layout
- Management
- Consumer Decisions
- Product Planning
- Merchandising
- Career Planning
- Communications

The program has an advisory board made up of local business people, high school counselors from the school districts served by the school, parents and former students. The function of this board is to:

- Provide important communication between the school and community
- Aid in a continuous review of the content and organization of the instructional program
- Make recommendations regarding purchase of equipment
- Assist with a continuous approval of occupational opportunities in the community
- Assist in hiring and placing of students

CONTACT: Cheryl Brown, San Juan Basin Vocational School

Teacher-Shadow Program.

Under the direction of Marion Shaw, Vocational Director at Moffat County High School, teachers are interacting with business people in the community in order to develop a mutual understanding of employability needs. The teachers are involved in the following activities:

- Going through the application/interview procedure with employers
- Interviewing the employers and entry level employees to identify types of occupations available, training needs for various jobs, information on salaries/benefits, problems in keeping qualified applicants, types of qualities needed to be successful in employment.
- Identifying resource people for school and career classrooms
- Developing profiles of the businesses contacted
- Developing teaching units on employability skills for the classrooms

CONTACT: Marion Shaw, Moffat County High School

Colorado Alliance of Business.

Colorado Alliance of Business (CAB) is a non-profit corporation established by the business community to represent the private sector perspective in addressing employment issues of the disadvantaged throughout the State of Colorado. Emphasis is placed on helping teenage youth make a successful transition from school to the work world. Activities include:

- **World of Work Orientations.** A two to three hour workshop which teaches young people self-directed job search skills. Taught by personnel specialists and managers from the local business community, topics include such basics as:
 - the application process
 - grooming
 - interviewing tips
 - employer expectations
- **Work For Yourself.** A three hour seminar designed to expose young people to the concepts of entrepreneurship and self-employment. Topics include:
 - business need analysis
 - marketing strategies
 - pricing
 - customer relations
 - record keeping
- **Seminars For Youth Services Staff.** A forum for the exchange of youth employment information between private sector employment specialists and public sector youth service providers.
- **Summer Job Hunt.** A private-public partnership between the Colorado Alliance of Business and the State of Colorado to find unsubsidized summer employment for young people ages 16-21.
- **Customized Workshops/Training.** Colorado Alliance of Business provides customized workshops and training based on specific needs. Examples include:
 - communication workshop
 - out-placement seminars
 - workshops regarding various employment and training programs

CONTACT: Sharon Barnes, Colorado Alliance of Business - Denver

CONCLUDING OBSERVATIONS — TRANSITION FROM SCHOOL TO WORK

During the survey, both entry level employees and military recruits reported that there were a substantial number of high school courses and activities, as well as home and community experiences, that helped them make a successful transition from school to work. Despite these experiences, according to employers surveyed, a significant number of young employees and recruits had difficulty in handling entry level job tasks.

From the information collected on the nature of entry level tasks, there are important differences between tasks required in high school and those required on the job. Young people need help in recognizing the nature of these differences as well as obtaining the experiences that will assist them in adjusting to employment requirements. Following are some examples of differences between school and work requirements which were apparent during the survey and some suggestions for assisting young people in bridging these differences.

One of the major differences between school and work requirements lies in the area of work accuracy. The school is an environment in which there are opportunities for a young person to identify and correct errors in assignments. However, once the young person is on the job, the employer can seldom afford the time and expense involved in correcting employee errors. For example, errors in filling out forms or completing correspondence, miscalculations involving money or rates, faulty input into a computer, or the incorrect reading of instructions can result in the improper ordering of materials and the loss of customers. Thus, while still in a school setting, the young person should recognize the importance of accuracy — of doing something right the first time. Accuracy can be learned if it is required in school work. With this kind of experience, the young person can be successful in meeting the expectations of employers.

A young person in school is in the process of obtaining a variety of reasoning skills. While the opportunity for additional development of these skills exists in most job situations, employers usually expect the application of reasoning skills in solving on-the-job problems.

A young employee is often expected to follow a set of procedures which includes obtaining the resources needed to do a job, conducting the work in an appropriate sequence, evaluating the work for accuracy and then, delivering the completed work on time. The abilities to collect and organize information and, in some cases, analyze and synthesize data are also requirements in entry level positions. Therefore, it is important that a young person have experience, while still in school, in applying reasoning skills in solving problems similar to those that might be encountered in an entry level job.

In school, a young person has considerable latitude in terms of attitudes and behavior. Expressions of displeasure with assignments, or reluctance in following the instructions of a teacher may result in a poor grade, but normally not dismissal from school. However, on the job, expressions of dissatisfaction with work or carelessness in following directions from a supervisor can result in dismissal. Contact with people who are knowledgeable about conditions on the job and experiences with part time employment are extremely valuable in helping young people develop an understanding of the types of attitudes and behavior required in entry level work situations.

These examples point out the sudden changes that occur between the last day of high school and the first day of work. Many of the deficiencies in the skills of entry level employees and recruits are due to a lack of awareness and a lack of experience on the part of young people in dealing with entry level requirements. These are deficiencies which educators and community people, working cooperatively, can help young people in overcoming. During the next year, the Colorado Department of Education will be working with educators and community people in a partnership process of developing strategies and materials to assist young people in making a successful transition from school to post secondary pursuits.

Appendix A

Organizations Involved in the Survey

Employer Organizations	Location		
Adolescent Center	Alamosa	Four Seasons Motor Inn	Colorado Springs
Alamosa Mushroom Farms, Inc.	Alamosa	* Frontier Airlines	Denver
Alpine Manor Health Care Facility	Thornton	F. W. Woolworth	Aurora
Aspen Care Center East	Westminster	Geist Farms	Loveland
Aspen Skiing Company	Aspen	Getty Trading & Transportation Co.	Denver
Audrey's Bakery & Cafe	Rifle	Glenwood Hot Springs Hotel	Glenwood Sprgs.
* Ball Corporation	Broomfield	Greenline Equipment Co.	Fort Collins
Barnes Business College	Denver	Handlebar Cycle	Durango
Beverly Manor	Boulder	Holiday Inn	Craig
Boulder Community Hospital	Boulder	Holsum Bakers	Grand Junction
Boulder Manor Health Care Facility	Boulder	Hotel Colorado	Glenwood Sprgs.
C & F Food Stores	Grand Junction	INMOS	Colorado Springs
Canon Potato Company	Center	J. M. Huber Corporation	Denver
* Carpenter Local #510	Berthoud	KISZ - KVFC Radio	Cortez
Casa Bonita	Lakewood	K-Mart	Cortez
Cecil Resources Corporation	Denver	Kodak Colorado Division of Eastman Kodak Co.	Windsor
Celebrity Sports Center	Denver	La Junta Medical Center & Nursing Home	La Junta
Central Bank of Chatfield	Littleton	Lakewood Brick & Tile Co.	Lakewood
Children's World	Arvada	Lamar Building Material Supply	Lamar
Christopher Moore Construction Co.	Montrose	Limon Livestock Exchange	Limon
City Market	Cortez	Martec Corporation	Pueblo
City Market	Grand Junction	Martin Marietta Aerospace	Denver
Colorado Carpenter's Statewide Joint Apprenticeship Educational and Training Committee	Denver	* McDonalds	Englewood
Colorado College of Medical and Dental Assistants	Denver	Mile High Cablevision	Denver
Colorado Housing Finance Authority	Denver	Mile High Turkey Hatchery	Longmont
Colorado Interstate Gas Company	Colorado Springs	Miller International Inc.	Denver
Colorado-Ute Electric Assn. Inc.	Montrose	Moffat County State Bank	Craig
Colorado Westmoreland Inc.	Paonia	* Monfort Packing Company	Greeley
Colorado-Wyoming Millright & Machinery Erectors	Denver	Montgomery Ward	Denver
Colowyo Coal Company	Craig	Mountain Bell	Denver
Community Hospital	Durango	Mountain Bell - Western Slope	Grand Junction
Conoco	Denver	National Jewish Hospital and Research Center	Denver
* Conoco Refinery	Commerce City	Neoplan U.S.A. Corp.	Lamar
Coors Industries	Golden	Nibco of Colorado	La Junta
Coors Porcelain Co.	Grand Junction	Noland Orchard	Palisade
* Craig Police Dept.	Craig	Nonpareil Processing Corp.	Monte Vista
The Denver	Denver	North Colorado Medical Center	Greeley
Denver Employment & Training Administration	Denver	The Outdoorsman	Durango
Denver Post	Denver	Penrose Community Hospital	Colorado Springs
Digital Equipment Corporation	Colorado Springs	Pepsi-Cola Bottling Company	Grand Junction
Do-Ray Lamp Co. Inc.	Colorado City	Public Service Company of Colorado	Denver
Drafting Ink, Inc.	Westminster	Public Service Co. - Western Division	Grand Junction
Drive Train Industries, Inc.	Denver	Quick Appliance Repair Service	Fort Collins
EduCare	Denver	Re Habitat Construction	Aurora
Elitch Gardens	Denver	* Safeway	Leadville
Equity Co-operative Oil Co.	Yuma	Safeway Stores Inc.	Sterling
Federal Lumber Co.	Durango	St. Francis Hospital	Colorado Springs
The Flower Mine	Craig	St. Joseph Hospital	Denver
Fortino & Jackson Chevrolet Co.	Pueblo	Schlage Lock Co.	Security
		Shepard's/McGraw-Hill	Colorado Springs
		Shop-All Super Foods	Yuma
		Sir Speedy Printing Center	Craig

Sommers Building Co.
Spring Creek Health Care Center
State Farm Insurance Regional
Sterling Colorado Beef Co.
Storage Technology Corporation
Summit County Journal
Talley Farms
TeleDyne Water Pic
Temporary Office Personnel
Services (T.O.P.S.)

Colorado Springs
Fort Collins
Greeley
Fort Morgan
Louisville
Breckenridge
Palisade
Fort Collins
Denver

The Travelers
United Bank Service Co.
U.S. Bureau of Mines
Valley National Bank of Cortez
Walker Research Inc.
Western Food Product Co.
Winter Livestock Commission Co.
Yellow Front Stores

Englewood
Englewood
Denver
Cortez
Aurora
La Junta
La Junta
Littleton

- * The management of these organizations were interviewed regarding entry level requirements. However, entry level employees were not interviewed at these locations either because of a policy that restricted such interviewing or the absence of employees meeting the criteria for the sample.

Military Bases and Centers

Fort Carson, Colorado
Lowry Air Force Base, Colorado
Peterson Air Force Base, Colorado
Denver Military Entrance Processing Station,
Denver, Colorado
Camp Pendelton, California
Service School Command, Naval Training Center,
San Diego, California

Appendix B

Resource People

Community and Educational Contacts

Jorge Amaya	Youth Employment Counselor	Rocky Mountain SER (Alamosa)
Ann Azari	Administrator	Larimer County Employment and Training Services (Fort Collins)
Glenn Bell	Supplemental Services Coordinator	Harrison School District 2 (Colorado Springs)
Cheryl Brown	Marketing and Distributive	San Juan Basin Vocational School (Cortez)
Don Brown	Educational Counselor	Durango Senior High School
Charlotte Brummer	Teacher, Secondary Mathematics	Doherty High School (Colorado Springs)
Patricia Crouse	Executive Director	Junior Achievement of Colorado Springs, Inc.
Bill Duncan	Assistant Director, Vocational Guidance Specialist	Delta-Montrose Area Vocational-Technical School (Delta)
Morris Evans	Teacher-Coordinator, Cooperative Occupational Education	Denver Public Schools
Paul Evans	Counselor	Lakewood High School
Patricia Graham	Department Chair Person, English Department	Wasson High School (Colorado Springs)
Carol Guerrie	Counselor	Central High School (Grand Junction)
Pat Heller	Business Education Teacher	Broomfield High School
Al Huber	Assistant Manager	Job Service Office (Grand Junction)
Akira Kawanabe	Architect	Architect & Associates (Alamosa)
Joleen Mannon	Project Director	Adolescent Center (Alamosa)
Michael Massarotti	Deputy Superintendent	Westminster School District 50
David McBride	Director of Alternative Education and Special Projects	Summit County High School (Frisco)
Darius Miller	Counselor	La Junta High School
Jerry Moldenhauer	Teacher Coordinator - Coop Program	Moffat County High School (Craig)
Duke Nielson	Director, Construction Advance Program	Associated General Contractors of Colorado (Denver)
Mary K. Noak	Health Administration/Education Consultant	Denver, Colorado
Larry Ortega	Project Coordinator (Alamosa)	Centro Emiliano Zapata de Aztlan Inc.
James Qualteri	Career Enrichment Park	Westminster High School
Don Rea	Supervisor (Longmont)	Colorado Career Information System
Dee Relyea	Training Specialist	Colorado Alliance of Business (Denver)
Charl Lee Sauer	English Instructor	Ranum High School (Denver)

Win Schendel	Sales Manager	New York Life (Denver)
Larry Siegfried	Instructor, Vocational Agriculture	Larimer County Vocational Tech (Fort Collins)
Curtis Talley	Instructor, Agricultural Science and Mathematics	Palisade High School
Rich Uhler	Teacher, Secondary Mathematics	Boulder High School
Leonard Vance	Metal Shop Instructor	La Junta High School
Chuck Wallin	Director	Colorado Boy's Ranch (La Junta)
Dee Weese	Coordinator	Western Colorado Employment Training Service (Grand Junction)
Tawney Willet	Cooperative Work Experience	Abraham Lincoln High School (Denver)
Charles Yokley	Coordinator for Student Services and Financial Aid Director	San Luis Valley Area Vocational School (Alamosa)
Connie Zajac	Support Services Teacher	Career Education Center (Denver)
Employability Skills Project Advisory Committee		
Maxine Brandenburg	Executive Director	Colorado Alliance of Business (Denver)
Chris Cook	Staffing Coordinator	Martin Marietta Aerospace Corp. (Denver)
Catherine Crandall	Executive Assistant/Staff Coordinator	Colorado Association of School Executives (Englewood)
Eric Eversley	Principal	Smoky Hill High School (Aurora)
Judy Gilbert	Consultant	Gilbert and Stoops, Associates (Yuma)
Claire Glassing	Support Services Branch Manager	State Board for Community Colleges and Occupational Education (Denver)
Alan Huth	Director of Small Business and Education	Colorado Association of Commerce and Industry (Denver)
Doug Johnson	Director of Career Development and Equal Opportunity Unit	Colorado Department of Education (Denver)
Frank Johnson	Director of Higher Education	Colorado Education Association (Aurora)
Gene Kane	Associate Director	Governor's Job Training Office (Denver)
Edmund Klocker	Supervisor	Stearns-Roger Fabricators, Inc. (Denver)
Geraldine Llewellyn	Vocational Director	Mapleton School District (Denver)
Lidoro Maestas	ASVAB Test Specialist	Military Entrance Processing Station (Denver)
Jim Manzanares	Counselor	Central High School (Pueblo)
Asahi Oshima	Career Education/Vocational Education Specialist	Boulder Valley School District
Mary Ann Partham	Director, Adult Vocation/Practical Arts	Denver School District 1
Marion Shaw	Vocational Director	Moffat County High School (Craig)
Sue Smedstad	Vice President of Administration	Aspen Skiing Company
Jerry Terrill	Coordinator, Student Guidance Services	Jefferson County School District R-1 (Lakewood)
Bob Williams	Personnel	Drive Train Industries (Denver)

Military Contacts

Fort Carson, Colorado

Terry Swanson	Supervisory Education Specialist	Army Education Center
Dona Jasiak	Coordinator, Basic Skills Program	Army Education Center

Lowry Air Force Base, Colorado

Rodwin Baldwin, Capt., USMC	Commanding Officer	Marine Detachment
Gary W. McDonald, Lt., USN	Public Affairs Officer	Naval Unit
Don Nate	Training Advisor	3400 Technical Training Wing

Peterson Air Force Base, Colorado

Robert B. Linden, Lt. Col., USAF	Chief Personnel	1st Space Support Group
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Denver Military Entrance Processing Station, Denver, Colorado

Ronald Sparacino, Maj., U.S. Army	Commander, MEPS Denver
Ted Payne, 1st Lt. USMC	Test Control Officer
Lidora Maestas	ASVAB Test Specialist
Frank Marshall	Navy Education Technician
Mike Webb	ASVAB Test Coordinator

Camp Pendleton, California

Mike Sullivan, Major, USMC	Director	Assault Amphibian School BN. MCB.
Michael E. George, Capt., USMC	Course Supervisor	Assault Amphibian School BN. MCB.
Wayne Jones Capt., USMC	Director	Special Projects

Service School Command, Naval Training Center, San Diego, California

E. J. Trapp	Senior Educational Specialist	Service School Command
J. P. Leahy	Dean of Navy Contact Instruction Program	San Diego Community College District

Appendix C

Listing of Descriptors Used in Report With Complete Task Statements

<i>Brief Descriptor</i>	<i>Complete Task Statement</i>
A. READING	
1. Details	Read for details and special information
2. Pictorial	Interpret pictorial, graphic or symbolic information (e.g., diagrams, schematics, charts)
3. Source	Use source materials (e.g., newspapers, directories, abstracts, periodicals, indices)
4. Instructions	Follow intent of written instructions, directions and procedures
5. Comprehension	Interpret ideas and concepts
6. Accuracy	Read accurately within given time
B. MATHEMATICS	
1. Calculations	Handle basic calculations (addition, subtraction, division, multiplication)
2. Estimating	Estimate quantities needed to do a job
3. Cost	Calculate costs (e.g., interest, discounts, depreciation, prices, taxes)
4. Pictorial	Use numerical values from charts, diagrams, manuals, tables
5. Constructions	Construct diagrams, charts, records requiring numerical calculations
6. Measurement	Make and use measurements (traditional, metric)
7. Formulas	Use Formulas (translating, substituting values)
8. Calculators	Use calculators to complete above tasks
C. COMPUTER	
1. Awareness	Aware of computer functions
2. Input	Input data into computers
3. Access	Access data from computers
4. Programming	Perform simple programming
5. Word processing	Perform word processing
D. WRITING	
1. Handwriting	Write legibly
2. Forms	Complete forms accurately (e.g., invoices, requisitions, sales slips)
3. Sentences	Write sentences in standard English (punctuation, spelling, syntax, word choice)
4. Organization	Organize, select and relate ideas in writing (e.g., correspondence, memos)
5. Reports	Produce intelligible written documents such as research reports and summaries
6. Proofreading	Identify and correct errors in writing
E. COMMUNICATION	
1. Instructions	Give clear oral instructions and directions
2. Explanations	Explain activities and ideas clearly
3. Reporting	Report accurately on what others have said
4. Conversation	Stay on the topic in job related conversation
5. Presentations	Effectively present information to groups
6. Clarity	Speak clearly
7. Vocabulary	Use appropriate vocabulary/grammar
8. Listening	Follow intent of oral directions and instructions
F. INTERPERSONAL	
1. Co-workers	* Function cooperatively with individual co-workers
2. Team	Function cooperatively as a team member
3. Regulations	* Adhere to company policies and regulations — honesty, health, safety standards
4. Customers	* Cooperate with clients/customers
5. Flexibility	Are open and flexible to new ideas and methods
6. Clarification	Seek clarification of instructions when necessary
7. Tolerance	Exercise patience and tolerance

8. Supervision
9. Initiative
10. Authority

- Accept constructive criticism/supervision
- Exhibit leadership (initiative)
- * Understand supervisory authority and worker responsibility

G. MANUAL/PERCEPTUAL

1. Assemble/construct
2. Hand tools
3. Visuals
4. Keyboard
5. Power equipment

- Construct, fabricate or assemble materials
- Use job specific hand tools and instruments
- Develop visual presentations (e.g., charting, drawing, illustrating)
- Use keyboard skills
- Operate job specific power equipment

H. PROBLEM SOLVING/REASONING

1. Activities
2. Procedures
3. Resources
4. Sequence
5. Changes
6. Organize
7. Analyze
8. Alternatives
9. Review
10. Accuracy
11. Deficiencies
12. Conclusions
13. Time
14. New Ideas

- Determine work activities to be performed
- Recognize and use appropriate procedures in carrying out work activities
- Obtain resources needed to carry out work (equipment, materials, co-workers)
- Conduct work activities in appropriate sequence
- Recognize the effects of changing quantity and/or quality of materials
- Collect and organize information
- Analyze and synthesize information
- Identify possible alternative approaches to solutions
- Review progress periodically to assure timely competition
- Evaluate for accuracy and completeness
- Correct deficiencies
- Summarize and draw reasonable conclusions
- Deliver completed work to appropriate destination on time
- Devise new ideas and better work methods

I. JOB RETENTION/CAREER DEVELOPMENT

1. Inservice
2. Education
3. Operations
4. Benefits/rights
5. Improvements
6. Responsibilities
7. Effort
8. New technology
9. Independence
10. Adaptability
11. Appearance
12. Organization
13. Future organization
14. Future career
15. Punctuality
16. Attendance
17. Economics

- * Participate in job-related activities that improve skills (e.g., inservice training, workshops)
- * Pursue education and training outside of job to improve job skills
- Become aware of company objectives, operations and organization
- Learn about employee benefits, rights and responsibilities
- Suggest and/or make workplace improvements
- Exhibit willingness to accept additional responsibilities
- Maintain consistent effort and respond with extra effort when appropriate (reliable)
- Make efficient use of new technology
- Work with minimal supervision
- * Adapt to different job assignments
- Maintain acceptable appearance
- Keep work area clean and organized
- * Exhibit interest in future of organization
- Indicate interest in future career development
- Maintain punctuality
- Maintain attendance
- Understand basic economics (e.g., profits, costs, revenue, taxes)

- * During the interview with employees and recruits regarding their high school preparation, the asterisked statements were rephrased to read as follows:

INTERPERSONAL

1. Function cooperatively with individual students
3. Adhere to school policies and regulations
4. Cooperate with people outside the school
5. Understand supervisory authority and student responsibility

JOB RETENTION

1. Participate in school-related activities that improve employment skills
2. Pursue training outside of school to improve job skills
10. Adapt to different school assignments
13. Exhibit interest in future of the school

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ACCOUNTABILITY AND ACCREDITATION

Implement district accountability and accreditation programs at the building level. Emphasis will be given to increasing public involvement, district evaluation of educational programs and student competency, reporting to the public, development of long-range plans by schools and school districts, and to strengthening the leadership effectiveness of the school principal.

ALLIANCES FOR PUBLIC EDUCATION

Increase the involvement of education with business, the community, and parents. Emphasis will be given to developing effective school-business-community relationships to promote school-community interaction, and maintaining dialogue between the State Board of Education, the Colorado Commission on Higher Education, the State Board for Community Colleges and Occupational Education, and other state educational organizations.

EDUCATIONAL LEADERSHIP

Implement activities to strengthen the leadership role of local school districts. Provide information and assistance to districts on technological advances, programs for gifted and talented students, and maintenance of efforts to be cost efficient and cost effective.

TEACHER EDUCATION

Implement the new state program for testing the basic skills of teachers seeking Colorado certification. Develop programs to assist in the recruitment and preparation of teachers to serve rural schools. Determine which curricular areas will face teacher shortages and formulate plans to improve opportunities in those subject areas.

STUDENT RESPONSIBILITY AND CITIZENSHIP

Develop opportunities for students to learn about their government and their responsibilities and opportunities as citizens. Implement district policies and programs which emphasize respect for one's self and others.

STATEWIDE LIBRARY NETWORK

Implement a statewide library network, utilizing modern technology, by the provision of technical expertise to existing Library Services and Construction Act automation projects and assistance to all Colorado libraries regarding their role in the Colorado library network.

Adopted by the Colorado State Board of Education on July 8, 1982.

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